MARCH 30, 1946

Railway Age

Founded in 1856

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THE KATY

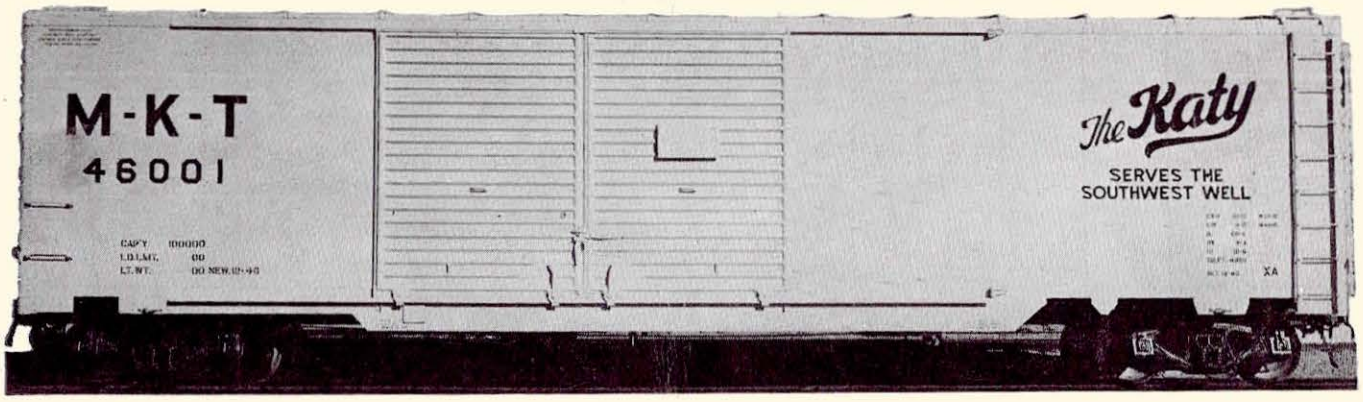
"serves the Southwest well"

with

YOUNGSTOWN

STEEL SIDES STEEL DOORS

CAMEL FIXTURES



Clear Door Opening 15′ 0″
Inside Height 10′ 6″
Inside Width 9′ 3″

385 Cars
40′ 6″ I.L.

125 Cars
50′ 6″ I.L.

Built in Katy Shops

YOUNGSTOWN STEEL DOOR COMPANY

Camel Sales Company
Cleveland Chicago

Camel Company Limited
New York Youngstown

AMCCW MAKES AN EXTRA CHECK FOR ROTUNDITY

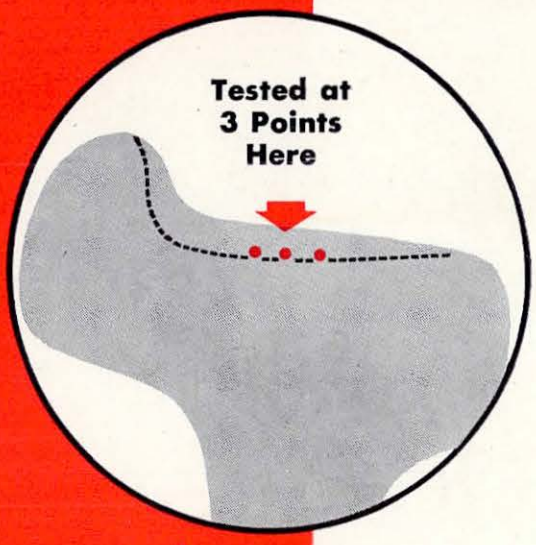


Figure One

Figure Two

Wheels tested at depth-of-wear

Not only is a wheel's original rotundity assured by rigid AMCCW tests, but an additional rotundity check is made at the same time to ascertain the wheel's hardness at the depth-of-wear permitted by the AAR tread worn hollow gauge and hence insure the maintenance of rotundity throughout the life of the wheel.

The average of three Brinell hardness tests — one made at each of the points indicated in Figure One — is part of this extra check. To pass this test, wheels must have an average tread hardness of 352. Moreover, this triple-average test at the depth-of-wear is made on the fracture having the lowest depth of chill as determined by visual examination of several fractures located at equidistant points on the tread's circumference. (See Figure Two.)

As a result of these checks, assurance is given of long, uniform wear and maintenance of rotundity. Other tests which are part of the regular procedures of every AMCCW member include chill test block taken at least once in every ten wheels poured . . . . one complete chemical analysis block with each heat . . . constant pyrometer checks for accurate process temperature . . . drop test of finished wheel (AAR specifications) . . . thermal test of finished wheel (AAR specifications).

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

230 PARK AVENUE, NEW YORK 17, N. Y. • 445 NORTH SACRAMENTO BOULEVARD, CHICAGO 12, ILL.

Organized to achieve: Uniform specifications — Uniform inspection — Uniform product

4490

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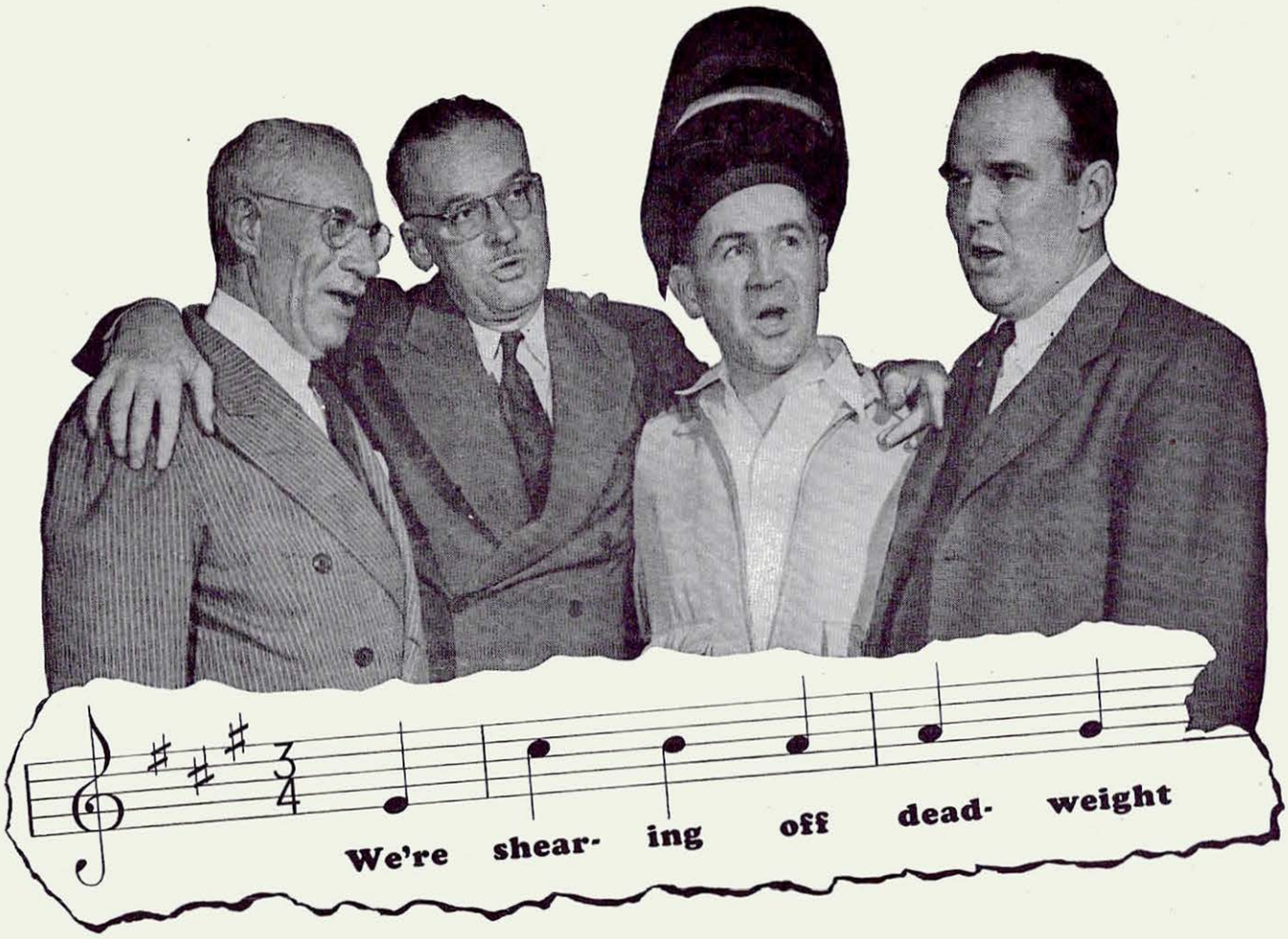

with Mayari R

RHYMES WITH "FIERY"

This low-alloy, high-strength steel makes a hit all along the line—with designers and manufacturers, with shop men, with operators.

Mayari R, with its minimum yield point of 50,000 psi—nearly twice that of mild-carbon steel—makes possible greater strength with lighter sections. Dead-weight can be reduced as much as 40 per cent. That appeals to designers and manufacturers.

Shop men like working with Mayari R because it welds easily, and can be fabricated readily. And it is used as-rolled, without heat-treatment.

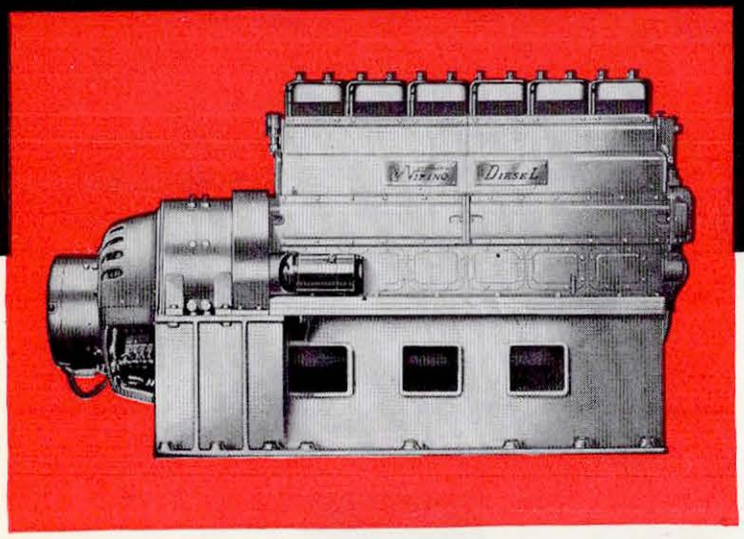
Railroad, bus, and truck operators can see important advantages in building transportation equipment with Mayari R—for by saving weight it provides more pay-load. And Mayari R's resistance to abrasion, impact and atmospheric corrosion means lower maintenance costs.

Look into Mayari R. Send for illustrated catalog. Address the nearest Bethlehem district office, or Bethlehem Steel Company, Bethlehem, Pa.

★ BETHLEHEM STEEL ★

Mayari R *makes it lighter... stronger... longer lasting*

Modern, Economical Power for



THE ROCK ISLAND CAR NO. 9049 POWER PLANT

Six cylinder 275 horsepower Sterling Viking Diesel driving a single bearing generator. Overall dimensions 121″ long by 67″ high.

The Sterling line includes both six and eight cylinder Viking Diesel Engines — turbo-supercharged or unsupercharged — in a power range from 200 to 660 horsepower. There is a Sterling Diesel to meet your needs. Let us know your requirements.

STERLING DIESEL ENGINE FEATURES

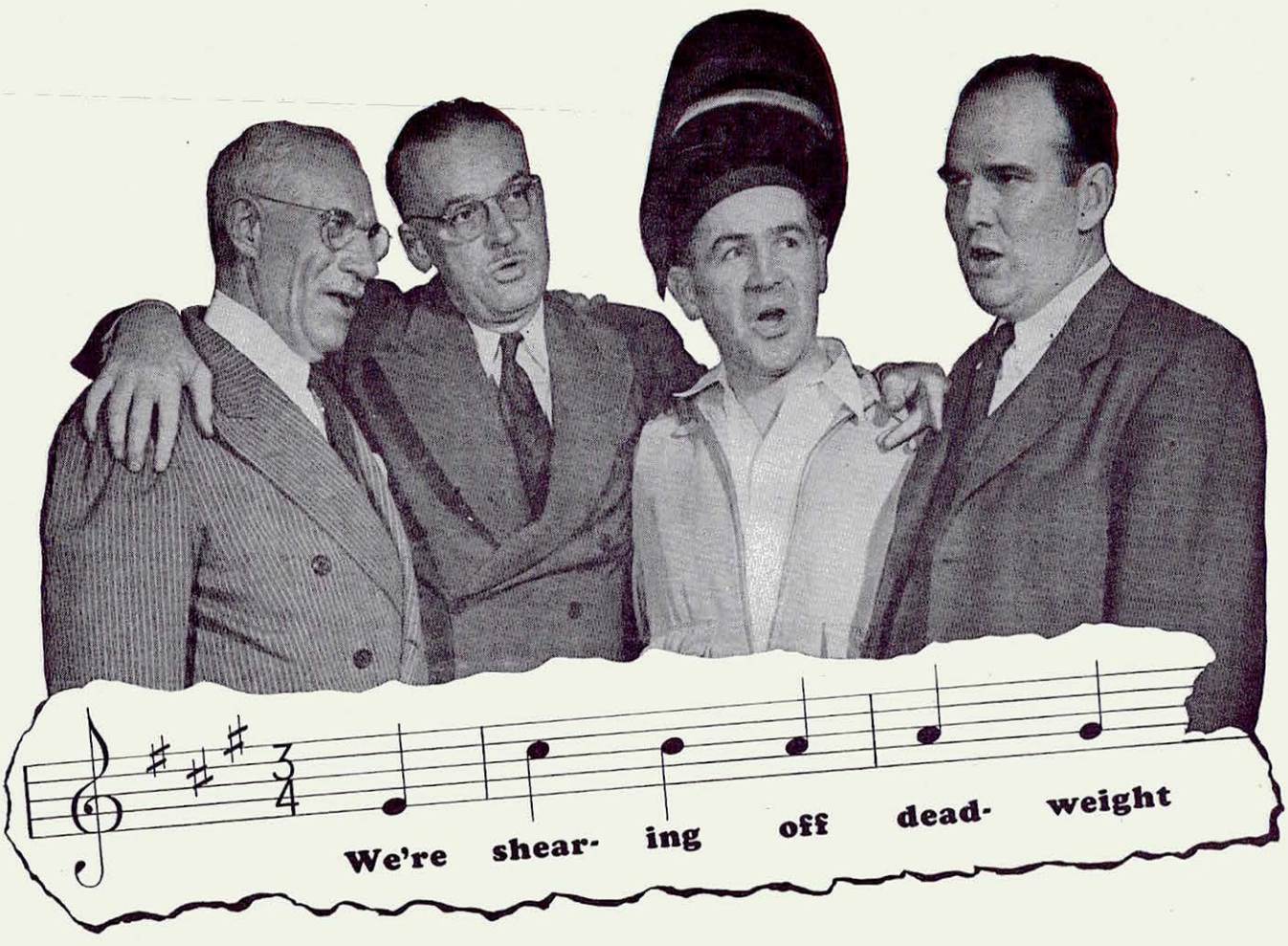
1 COMPACT DESIGN... Sterling Viking Diesels can be installed without extending engine room compartments. It is even possible in many cases to use the same engine mounts, generator and accessories when replacing present gasoline engines.

2 AVAILABILITY... Every part of a Sterling Viking Diesel has a big safety factor — has been factory and service tested — assuring maximum availability — uninterrupted, continuous operation.

3 ACCESSIBILITY... All working parts — bearings, camshaft, valves, injectors — are quickly accessible for servicing — maintenance costs are low.

4 REDUCED WEIGHT PER HP. Reduced weight per hp. is accomplished through design refinement — giving a clean, sturdy, easy-to-handle engine delivering smooth performance through its entire power range.

5 HIGH EFFICIENCY... Operating efficiency of Sterling Viking Diesels is high when you buy them — stays high as you use them — year after year — the result of expert design, fine workmanship, select materials.

6 STRONGER CONSTRUCTION Sterling one piece block and base construction gives Viking Diesels their tremendous strength.

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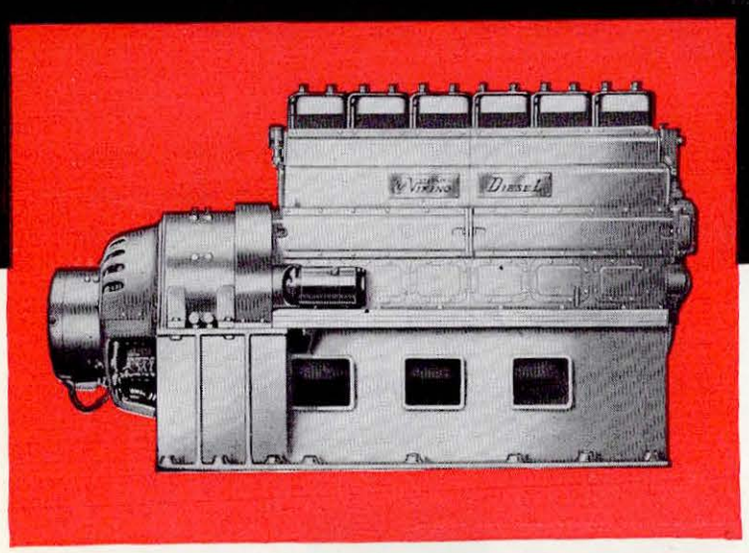

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the "Route of the Rockets" *via Sterling Viking Diesel*

PROFITABLE railroad operation demands sharp attention to mileage costs. This is one important reason why the Rock Island selected a Sterling Viking Diesel to replace an outmoded, less efficient gasoline engine in Railcar No. 9049.

In addition to effecting a ⅔ reduction in fuel cost it was possible, by reason of Sterling Viking Diesel's compact design, to retain the present base, generator and most accessory equipment, thereby saving a considerable sum for other modernization plans. Too, loss of operating revenue during conversion was minimized...it was no job at all to remove the old engine and install the efficient, dependable and safe Sterling Viking Diesel. As a matter of fact, *there are hundreds of outmoded gasoline engine powered cars on the nation's railroads that could profit by these Sterling Viking Diesel modernization advantages.*

Sterling's railroad power experience dates back 34 years to our original rail car installation. Through the years Sterling has kept ahead of the pace. In addition to the Rock Island, the Great Northern, Pennsylvania, Atcheson Topeka & Santa Fe, Phelps Dodge, Whitcomb Locomotive Works and others have selected Sterling Viking Diesels for their *new* power.

On your railroad Sterling Viking Diesels should be on the job saving you money in fuel costs...giving you the safety features of a Diesel engine...and bringing you the utmost in availability and long service life for which Sterling engines are famous.

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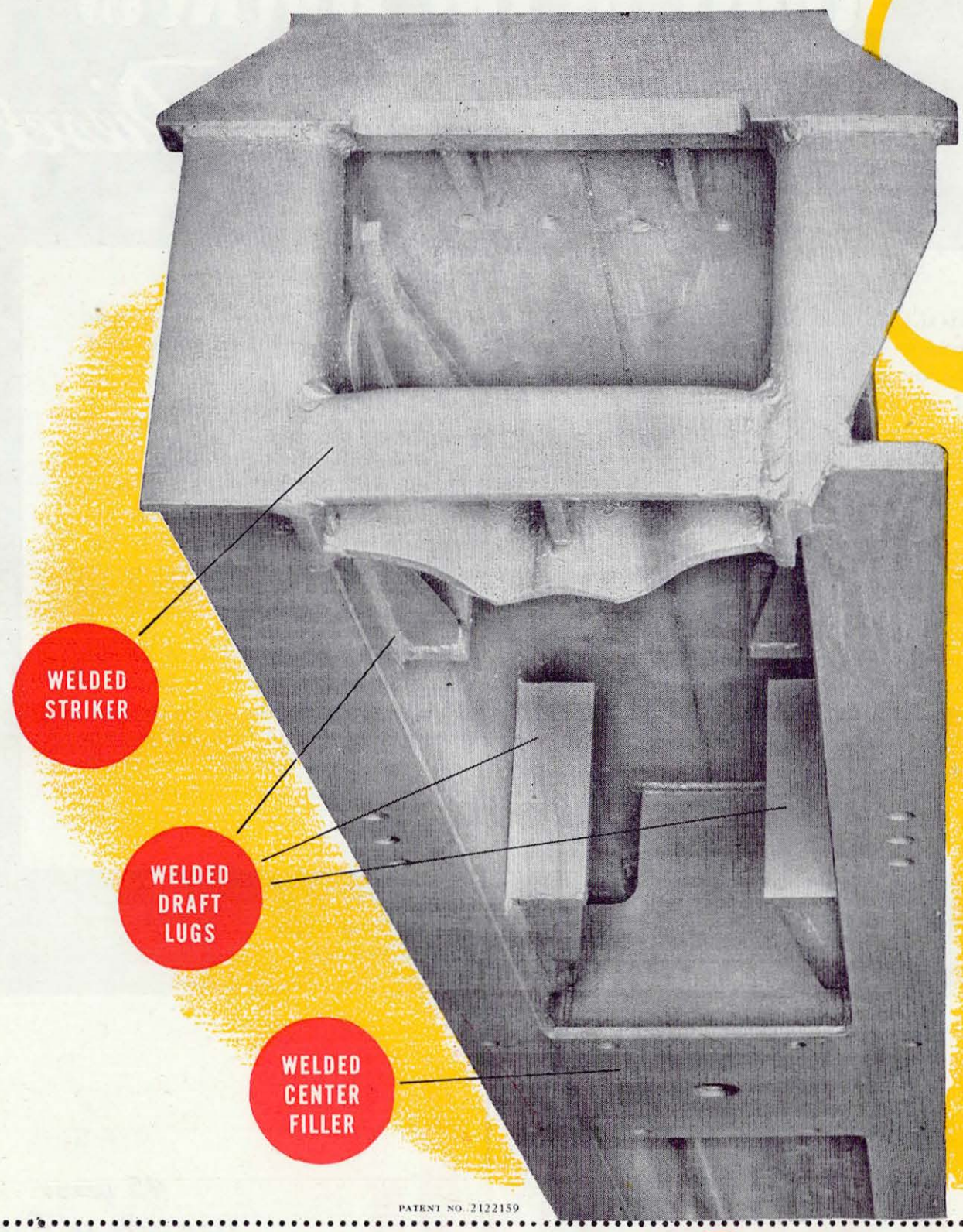

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FREIGHT CAR DRAFT SILL

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- **Pullman-Standard welded bolster center fillers, draft lugs and strikers are permanently tight.**
- **Damage to car structures and trucks often resulting from loose rivets is definitely prevented.**
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- **Has been specified for more than 51,000 freight cars.**

Experience with cars now in service, some built more than thirteen years ago, confirms Purdue University's findings that the strength of this welded construction is superior to that of conventional riveted construction. Proved also is the excellent quality of engineered welding by Pullman-Standard.

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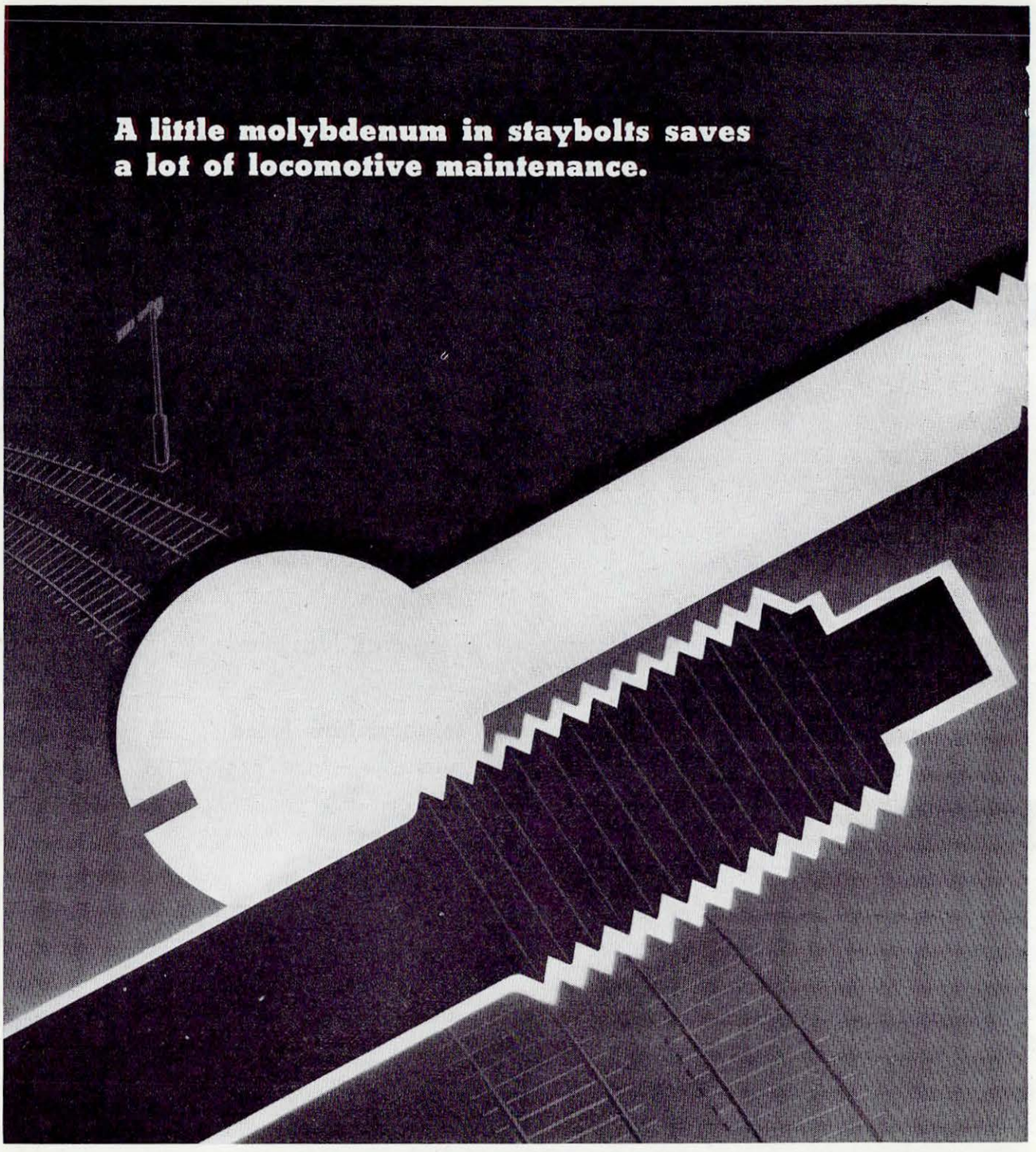

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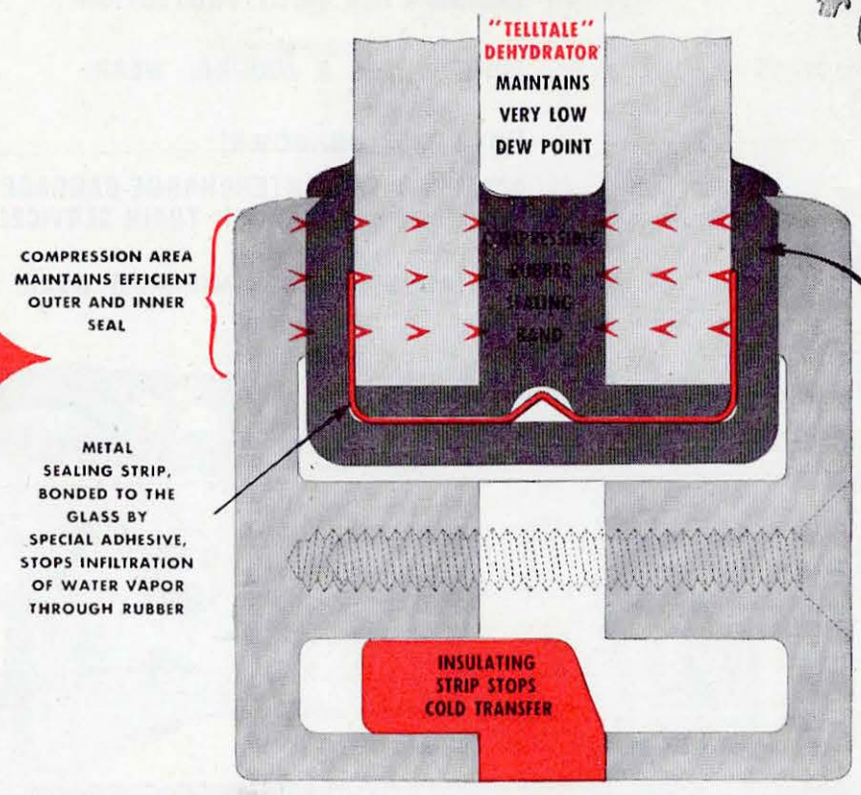
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SASH FOR EVERY TYPE OF TRANSPORTATION — ON LAND, ON THE SEAS, IN THE AIR

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MEAN SAFER, MORE ECONOMICAL CAR OPERATION—
THE PRINCIPLE HAS PROVEN TO BE CORRECT

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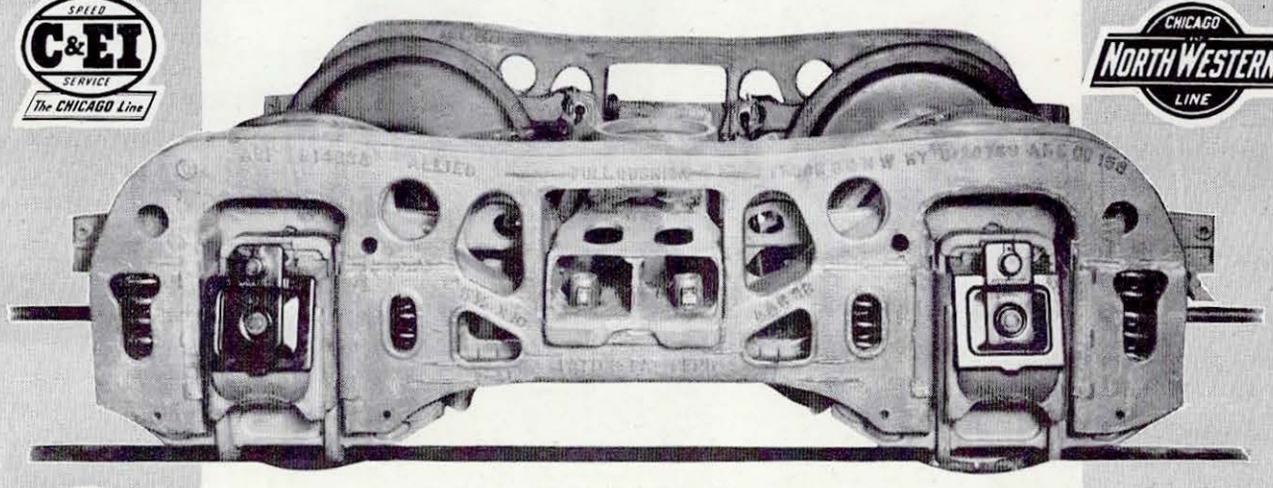

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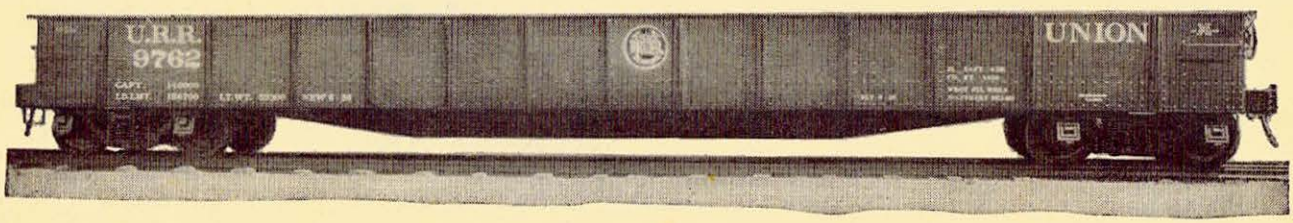

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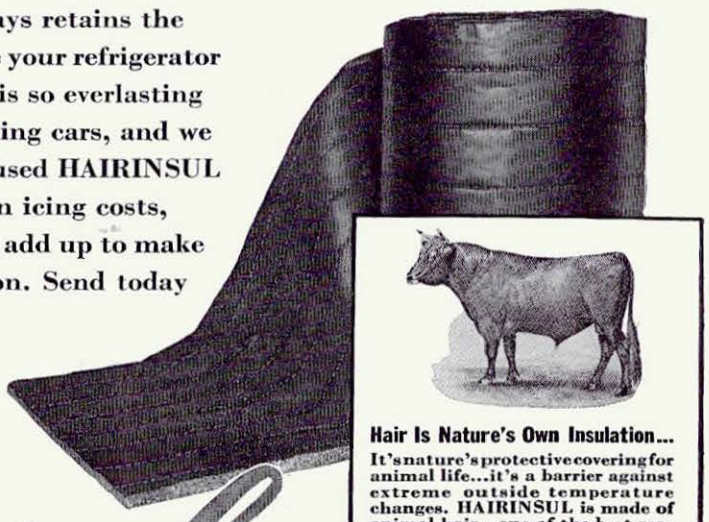

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ALL HAIR INSULATION FOR REFRIGERATOR CARS

GREATER

LOCOMOTIVE ECONOMY

- Reduction in counterbalance weights
- Less wear to cylinders and other parts
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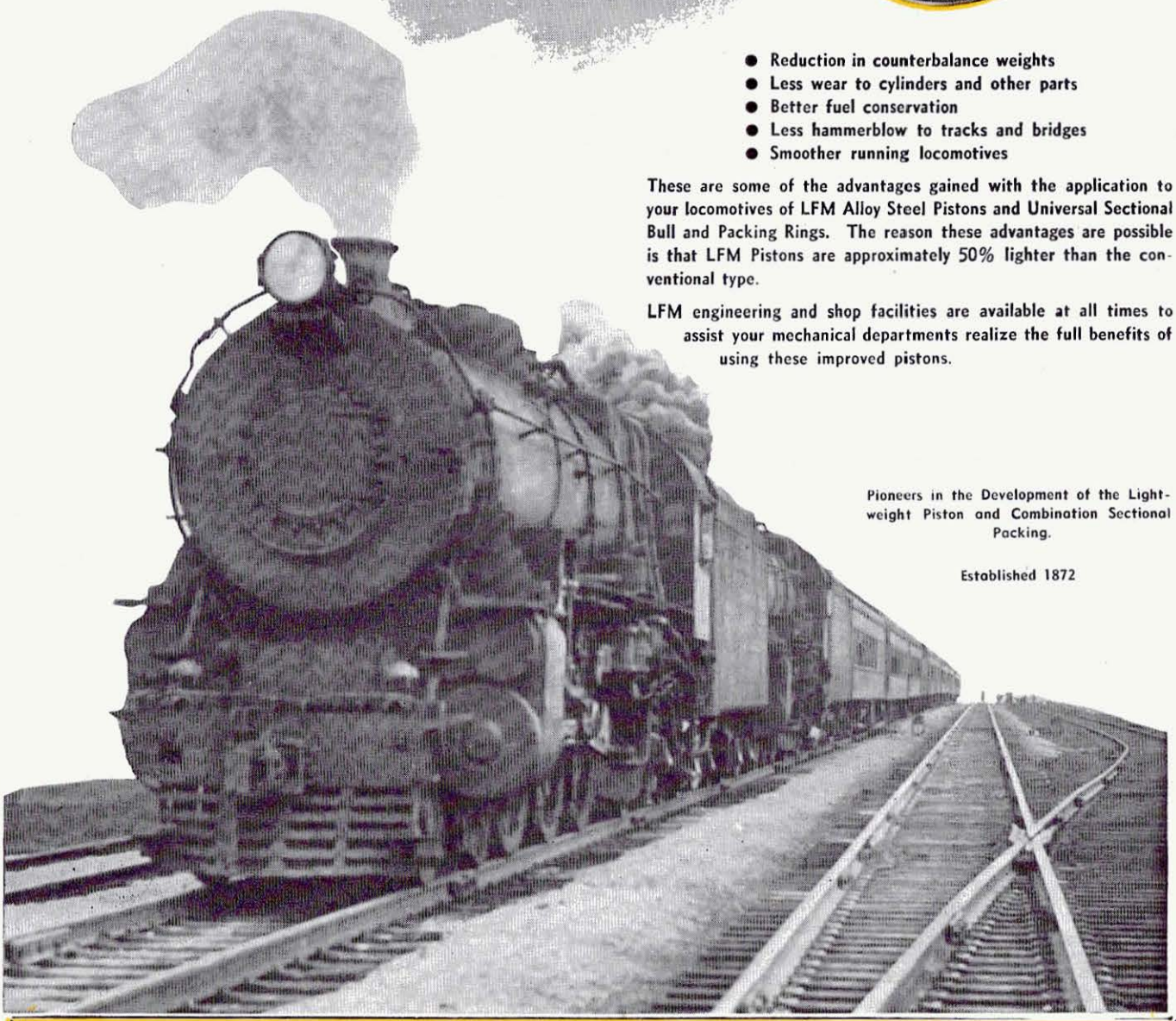
- Smoother running locomotives

These are some of the advantages gained with the application to your locomotives of LFM Alloy Steel Pistons and Universal Sectional Bull and Packing Rings. The reason these advantages are possible is that LFM Pistons are approximately 50% lighter than the conventional type.

LFM engineering and shop facilities are available at all times to assist your mechanical departments realize the full benefits of using these improved pistons.



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Established 1872

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LIGHTEST yet STRONGEST

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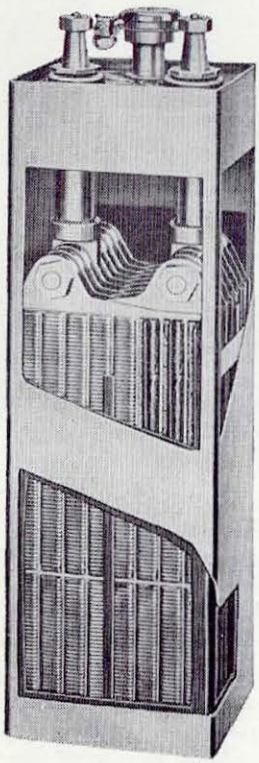

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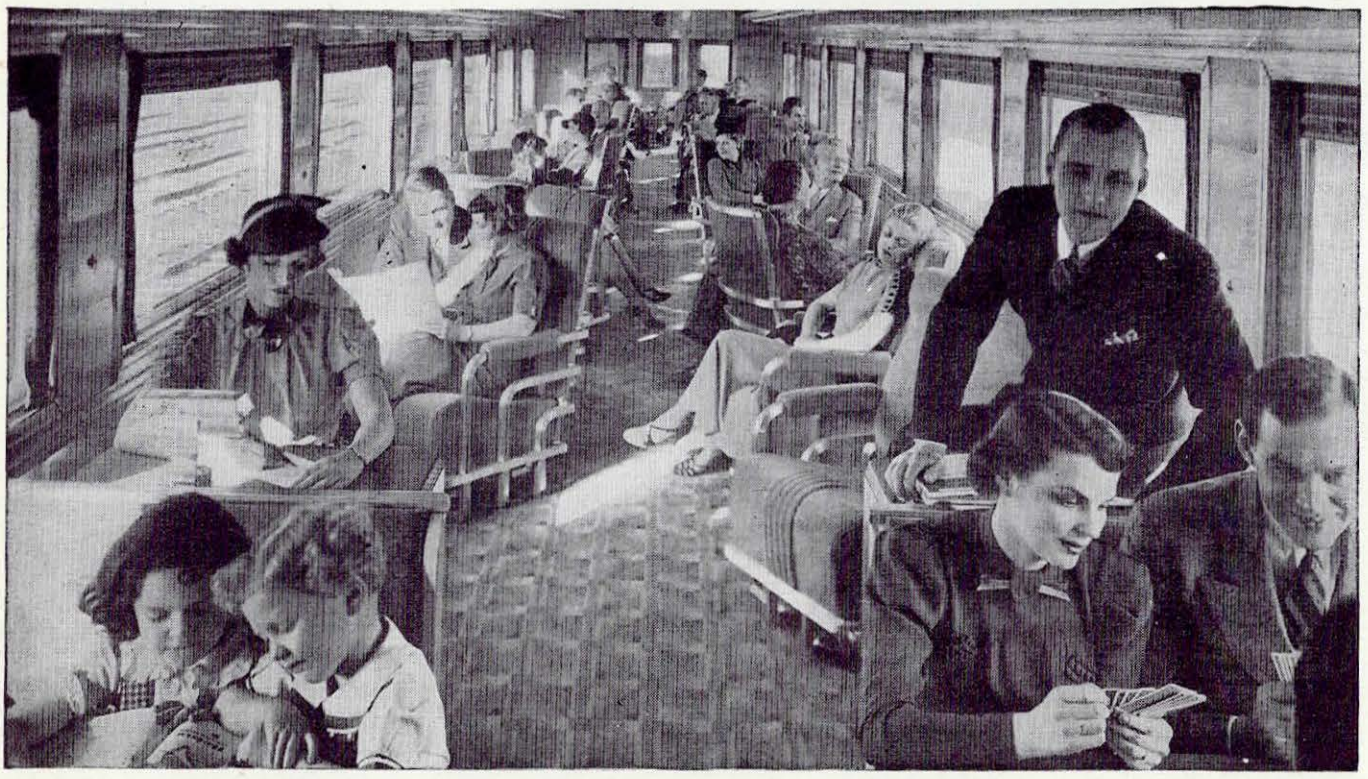
THE LIGHTWEIGHT BATTERY
FOR LIGHTWEIGHT CARS

CARS that carry Edison Alkaline Batteries carry *less* dead-weight. Reason is: these batteries are the lightest of all types available for railway car services. You'll want to remember that fact when obtaining batteries for new cars. It means that with alkaline batteries you can provide the required kilowatt-hour capacity with the least additional weight. The larger the battery capacity needed, the more weight you save by installing alkaline batteries—and you gain this weight-saving where it counts most—near the middle of the car.

Steel cell construction gives alkaline batteries unmatched mechanical strength, too. In fact, they are one of the few car accessories with which you can save weight and gain structural strength at the same time. Because they have a fool-proof electrochemical principle of operation combined with their steel cell construction, alkaline batteries provide a power source of highest dependability. They are the finest "power insurance" you could want for the electrical features that mean so much to passenger comfort. Trends toward higher voltage systems, and new developments in associated equipment make alkaline batteries more attractive today than ever before. Edison Storage Battery Division of Thomas A. Edison, Incorporated, West Orange, N. J.



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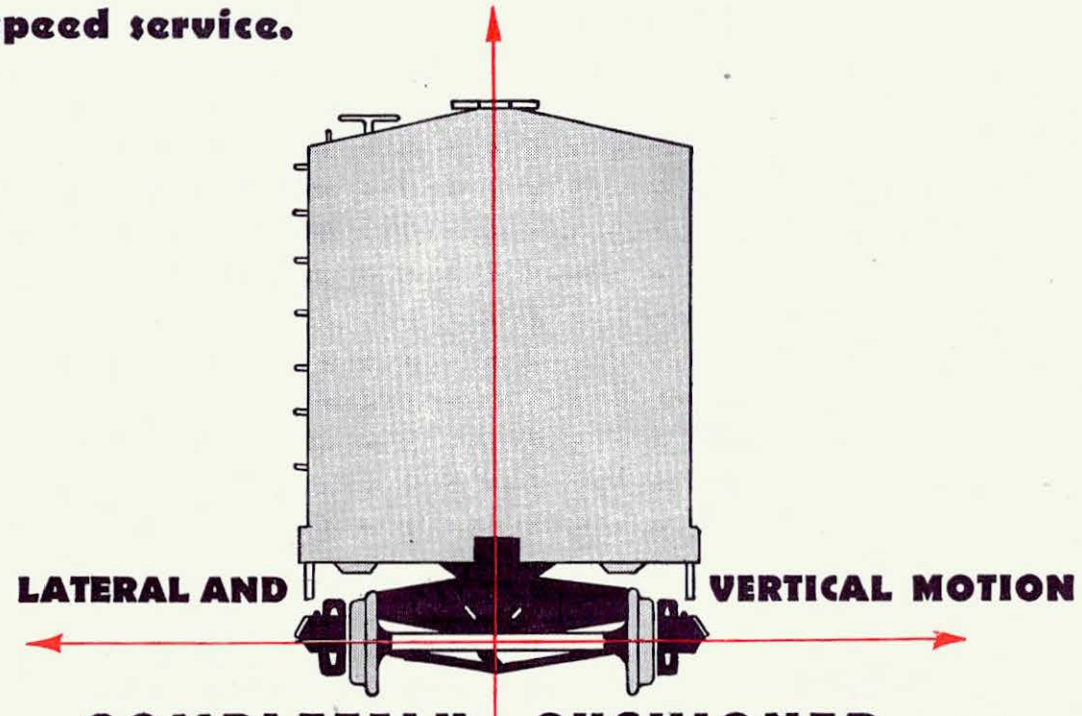
SCULLIN L-V TRUCK

LATERAL-VERTICAL
CUSHIONED MOTION

A new freight car truck designed to prevent lading damage and operate safely in general and high speed service.



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BOTH UNDER CONTROL

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ARMY ★ NAVY

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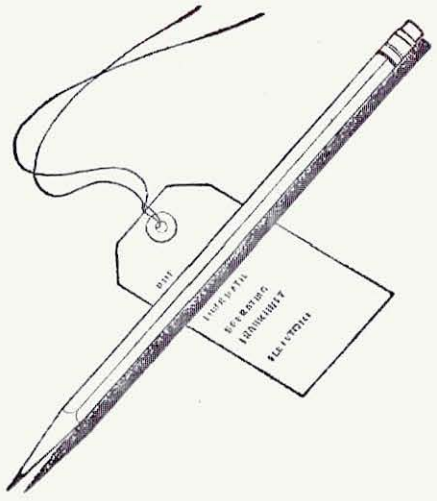


Check list
for Peacetime Operation

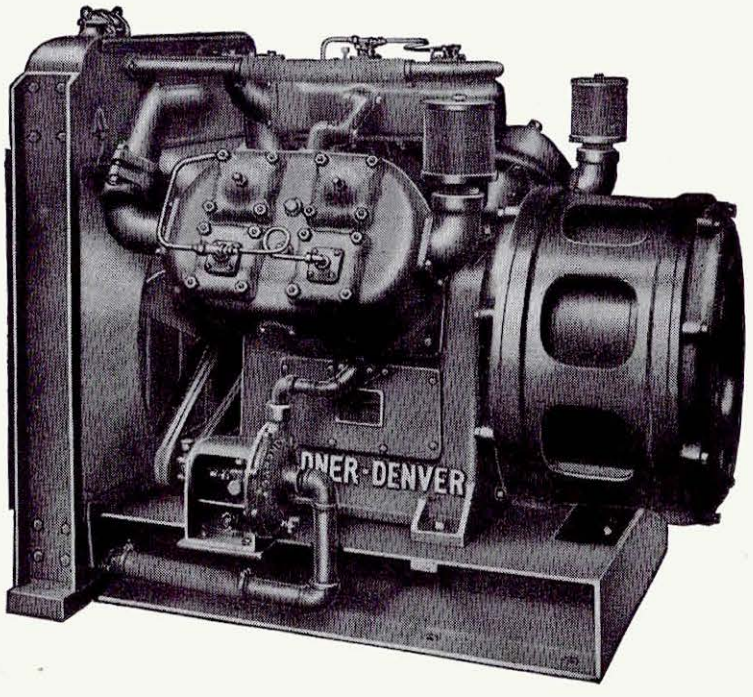
Equipment has suffered during the war. Your compressor, for example, may have had to run extra long hours without adequate attention and may need to be replaced to assure dependability and low operating costs.

The Gardner-Denver "WB" Vertical Water-cooled Compressor provides a dependable, low-cost source of air power. Its rugged construction and advanced design have established long records of economical service. Cylinders and compression heads are completely water-jacketed to assure continuous operation. Compact, the "WB" takes but little space and requires no outside piping—installation is simple.

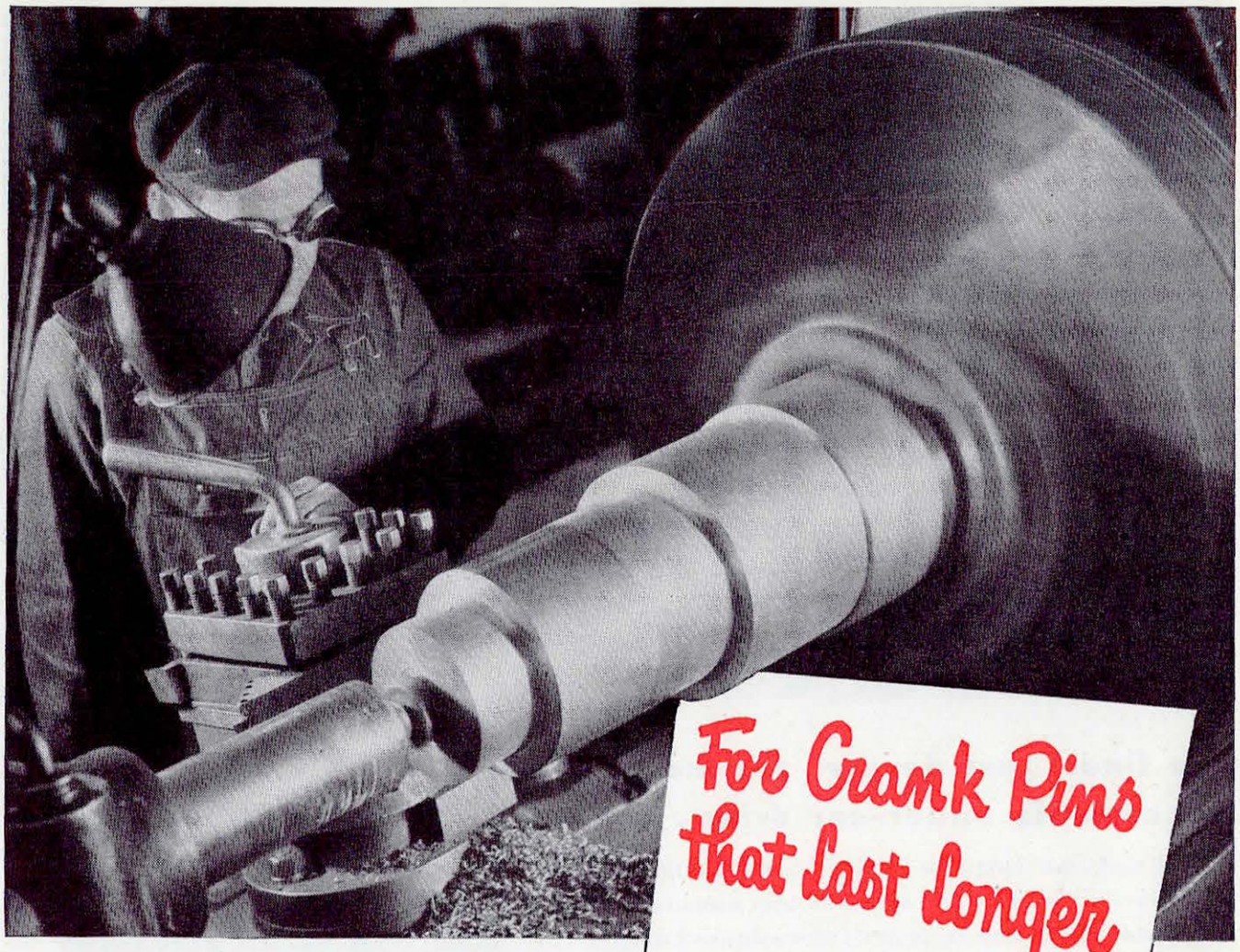
Check your compressor—it may need replacement. Replace with Gardner-Denver and be assured of dependable, low-cost service. For complete information, write the Gardner-Denver Company, Quincy, Illinois.

GARDNER-DENVER

Since 1859



Gardner-Denver Two-Stage Vertical Water-cooled Compressor. Capacity 142 to 445 cubic feet per minute.



—no other material can equal ALLOY STEELS

Nowhere are operating conditions more punishing than those of modern locomotive crank pins. Heavy strains . . . sudden reversal of stresses . . . sub-zero temperatures . . . severe shocks . . . constant abrasion . . . these are but a few of the reasons why it pays to use Republic Alloy Steels for vital operating parts.

These top-quality steels are as strong, tough, and responsive to hardening treatment as modern, scientific steel production methods can make them . . . processed to give dependable, long-time performance—at lowest possible cost per year of service. Their high strength-to-weight ratio affords wide opportunities for designers to make substantial reductions in equipment deadweight without any sacrifice of needed strength or safety.

For engine bolts, staybolts, pins, bearings and reciprocating parts—wherever severe service calls for the utmost in strength, hardness and dependability—no other material offers so many advantages as alloy steels. Republic—world's leader in the production of alloy steels—is ready NOW to help you in the most efficient and economical application of these fine steels. Write to:

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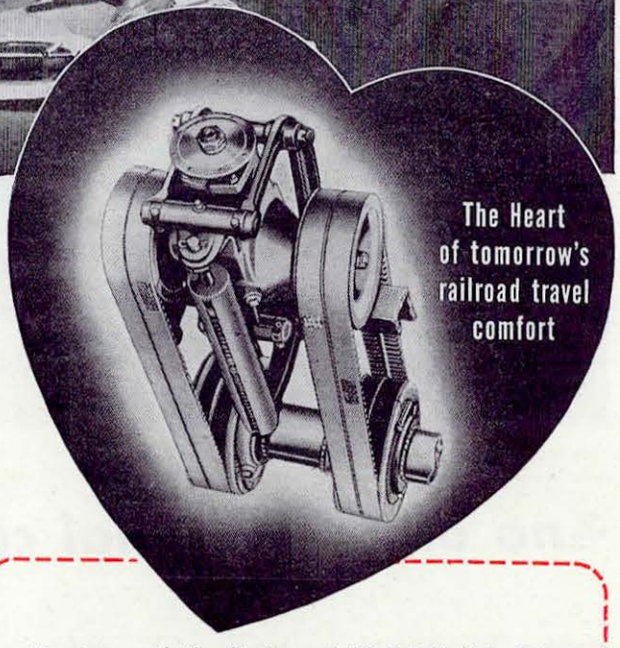
THE CONFERENCE ROOM—
Another new idea that will make railroads tomorrow's preferred form of travel.



The finest cars deserve the most dependable under-car drive...

Special conference rooms for holding business meetings while traveling will have real appeal for busy executives ... provided such rooms are properly air-conditioned and adequately lighted. That's why the under-car drive must be the most dependable that engineering skill and years of experience can produce. Dayton "D-R" V-Belt Axle Drives have been in use on railroad cars for 15 years without a known case of mechanical failure due to V-Belts. For this reason, farsighted railroad car designers prefer Daytons to any other type of under-car drive. Let a Dayton railroad specialist give you the benefit of these years of experience in designing dependable under-car drives. Write today.

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Railroad V-Belts by

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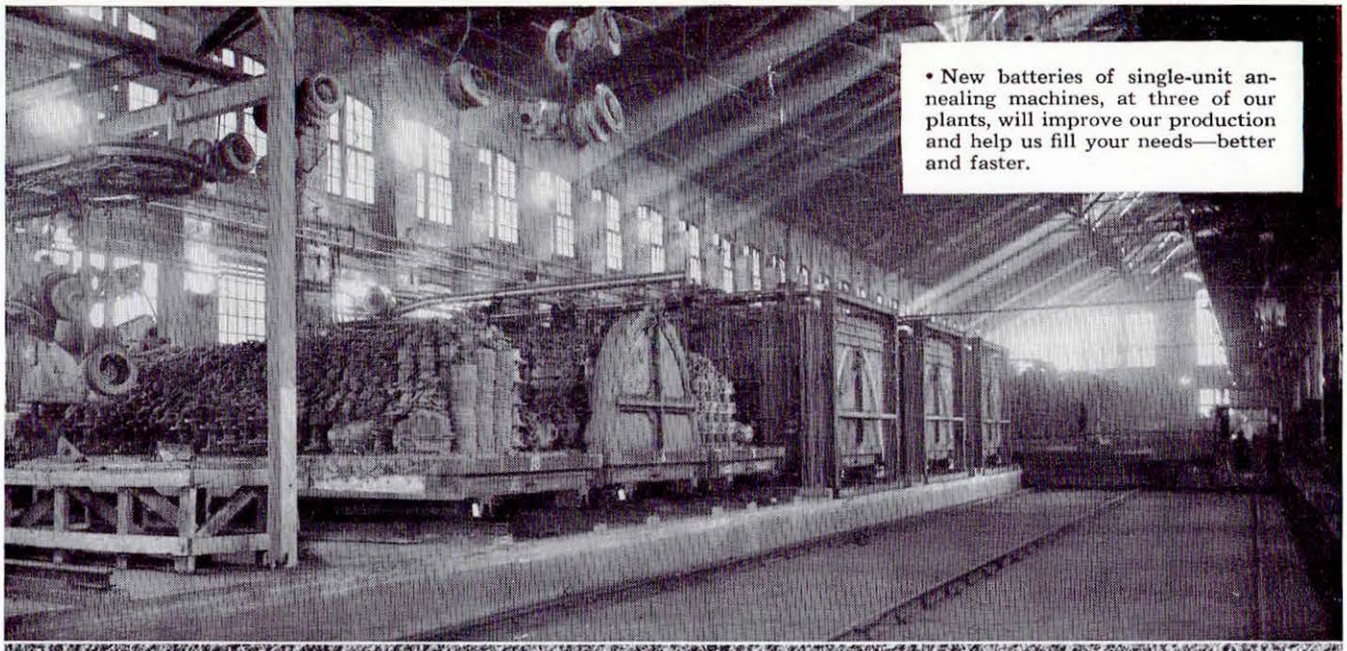
REG. TRADE MARK THE DAYTON RUBBER MFG. CO.
THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

Advantages of the Dayton "D-R" V-Belt Axle Drive

1. *Quiet and smooth performance with high availability—in 15 years a mechanical failure due to V-Belts has never been reported.*
2. *Provides a flexible, cushioned connection between the car axle and the driven unit that protects generators and other equipment should a mechanical failure occur.*
3. *It is convenient and economical to install . . . no complicated or expensive truck changes are necessary . . . no special axles are necessary.*
4. *Duplicate equipment is not necessary to take care of emergencies—when wheel changes must be made, only the axle pulleys need to be removed.*
5. *It greatly reduces maintenance cost on mechanical equipment as well as on the drives.*
6. *It imposes a minimum weight on the car axle.*
7. *Easy and simple to install, dependable in operation, and insures uninterrupted performance.*

★ 40 YEARS OF RESEARCH IN NATURAL AND SYNTHETIC RUBBER ★

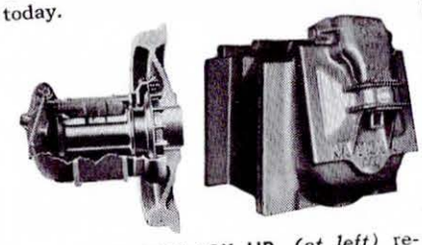


• New batteries of single-unit annealing machines, at three of our plants, will improve our production and help us fill your needs—better and faster.

Modernized plants . . . to meet your *Confidence*

ADVANCED ENGINEERING

Alertness to railroad needs, and ingenuity in meeting them, have led to many National Malleable developments . . . contributing much to the increased speed and safety of train movements today.



ROUND JOURNAL-BOX LID, *(at left)* recently announced by National Malleable, can be machined to an exceptionally tight fit when desired. An upstanding flange overlaps the edge and recesses the lid into the box.

NATIONAL FLEXO NO. 2 JOURNAL-BOX LID, *(at right)* A.A.R. approved, has outer flanges to keep out foreign matter and inner ribs to guard against oil loss. Rugged construction and positive hold-down pressure contribute to long life and dependability.

EST. M&S Co. 1868

To enable us to keep pace with your rehabilitation programs, we have made extensive improvements in our production facilities.

New equipment and processes are now at work in all our plants. More are being readied for quick installation. Supporting these physical facilities is that advanced engineering "know-how" which has worked with you, for so long, to help you improve the speed and safety of your service.

This modernization program has but one object—to meet the confidence which has been the basis of our relationships for 77 years—and to enable us to deliver National Malleable products in the quantity and quality you have every right to expect.

You can deal with National Malleable . . . with confidence.

NATIONAL MALLEABLE

& STEEL CASTINGS COMPANY

Cleveland, Ohio

Sales Offices: New York, Philadelphia, Chicago, Richmond, St. Louis, San Francisco.

Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

Railroads Are Everyone's Responsibility

says

R. R. Rider

(Number one of a series)

You and I have a personal stake in this and every other railroad. That goes for everyone, although few realize it. Maybe we don't depend on a railroad for our bread and butter. Perhaps we're not in businesses which sell to railroads or use their services directly. Personally, I don't own a single railroad security, and as far as this trip is concerned — well, I *could* get to where I'm going some other way. But in spite of all that, you can't get away from the fact that the well-being of the railroads affects us personally.

In the first place, take the money that railroads keep in circulation. I saw the round figures in a booklet put out by the Association of American Railroads. In 1944 the railroads paid almost $4 billion in wages, over a billion and a half for materials and supplies. That's important money, even for these days, and much of it had to come our way. Reach into your pocket; some of your share's jingling there right now. Then there's the obvious fact that no business or activity could exist without the system which carries the major part of our freight and passengers.

I said that I own no railroad securities. That's not exactly right, for I just remembered that I do, in a way. I've bought my share of all kinds of insurance — life, fire, casualty — and I think you know that insurance companies invest heavily in railroad stocks and bonds. Heard the figure the other day, and it makes you whistle — almost. 3½ billion dollars! A lot of college and school endowment funds are invested in railroad paper too. If anything happens to those investments our policies are not going to pay off and our kids will find it harder to get an education.

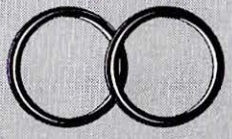
Yes, it's a blind mistake when fellows like you and me ignore conditions which make it hard for railroads to stay healthy. When we make their welfare our personal business we're only looking out for ourselves.

Edgewater

Serving America's Railroads

RING SPRING DRAFT GEARS

ROLLED STEEL WHEELS



LOCOMOTIVE TIRES

EDGEWATER STEEL COMPANY · PITTSBURGH, PA.

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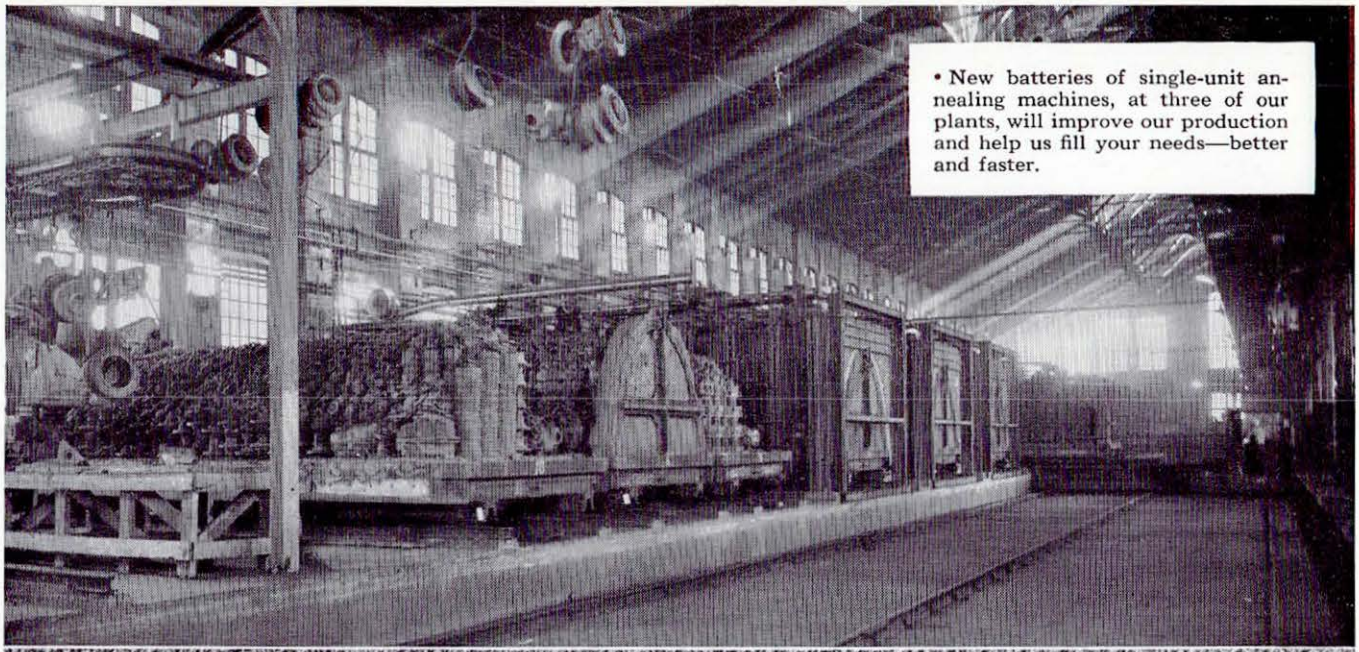

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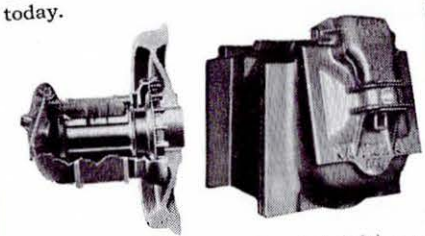

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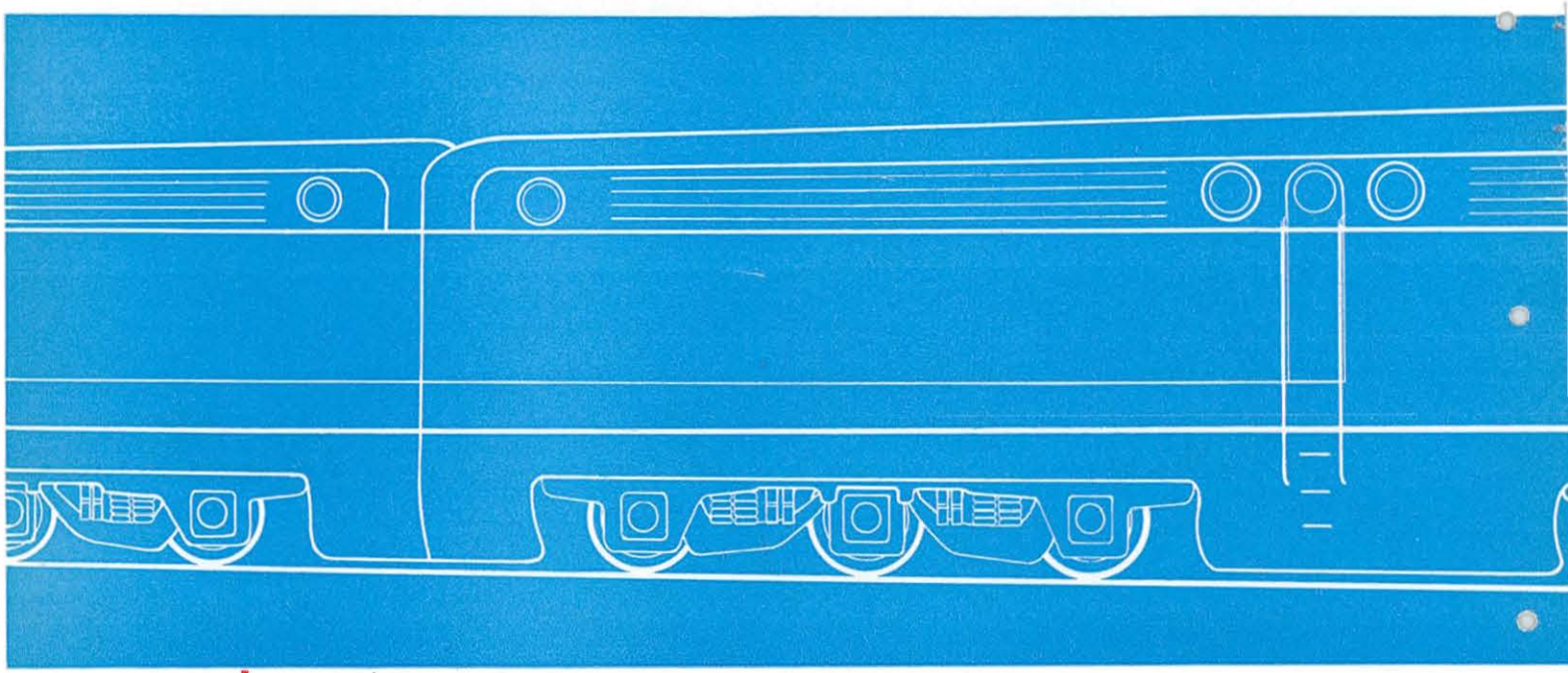
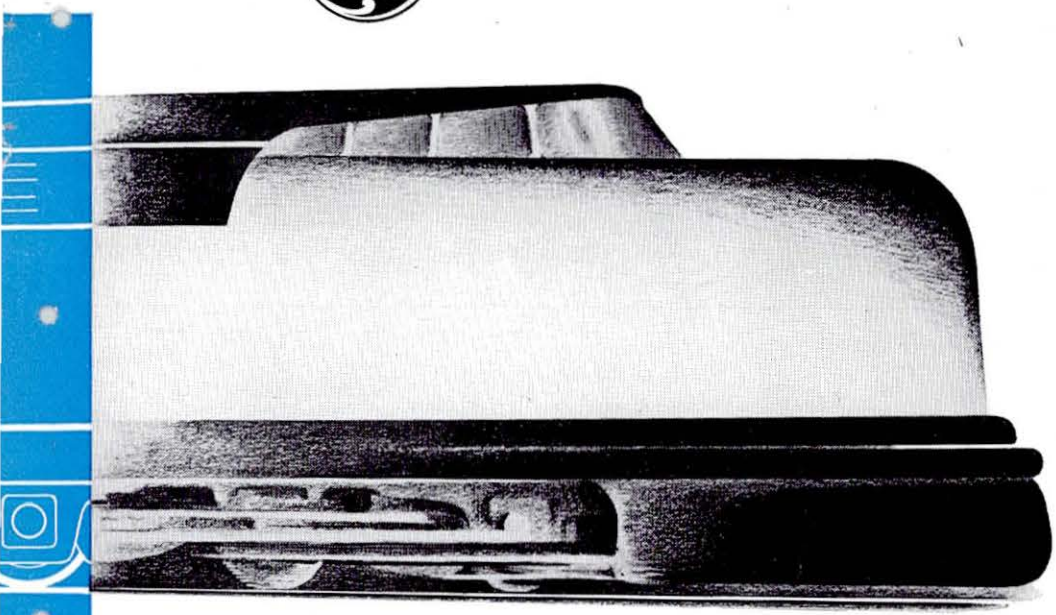
COMING April 13th . . .

a super diesel-electric from ALCO-G.E.



Alco GE



PLANNED by the cream of motive-power engineering talent . . .

STYLED by one of America's foremost industrial designers . . .

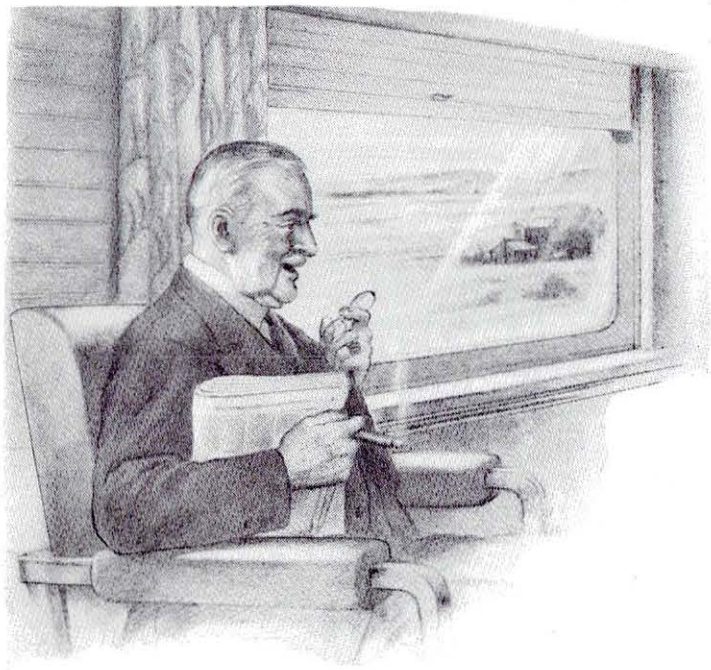
TESTED in laboratory and factory and on the road . . .

. . . A NEW, SUPER DIESEL-ELECTRIC WILL SOON ROLL OFF THE PRODUCTION LINES.

This mighty locomotive will bring you the combined benefits of our 20 years' experience building diesel-electrics for railroads, and our war time developments such as turbosuperchargers, power plant regulating systems, and high-efficiency diesel engines. It will produce—year after year—the high-speed, low-cost ton- and passenger-miles you'll need to successfully meet increased peace-time competition.

AMERICAN LOCOMOTIVE AND GENERAL ELECTRIC

113-159



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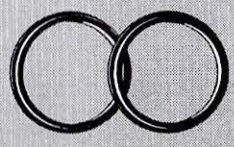

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EDGEWATER STEEL COMPANY · PITTSBURGH, PA.

Atlanta — Baltimore — Boston — Chicago — Cleveland — Kansas City — Louisville — New York
Philadelphia — St. Louis — St. Paul — San Francisco — Seattle — Washington, D. C.

Train Smoke Spelled TROUBLE for the Alton & Southern

. . . Now ALCOA ALUMINUM is on the job

The locomotive house beams you see in the photograph above are brand-new replacements of Alcoa Aluminum—another case where the corrosion resistance of Alcoa Aluminum solves a construction problem . . .

For it took only twelve years for corrosive engine smoke to damage the previous steel beams to a point where they demanded replacement. Alton & Southern decided to replace with structural members that would *last* under the severe conditions imposed by heat, moisture, and sulfur gases.

Corrosion resistance is only one of the advantages of Alcoa Aluminum for heavy construction. Members are light in weight, easier to handle. Easy to fabricate. Strong, with all the strength that Alcoa Research has built into the big family of Alcoa Aluminum Alloys.

Stock structural shapes are available from your nearby Alcoa distributor. Consult our nearest sales office, or write:

ALUMINUM COMPANY OF AMERICA, 2178 Gulf Building, Pittsburgh 19, Pennsylvania.

ALCOA FIRST IN ALUMINUM

REG. T. M.

ALCOA ALUMINUM

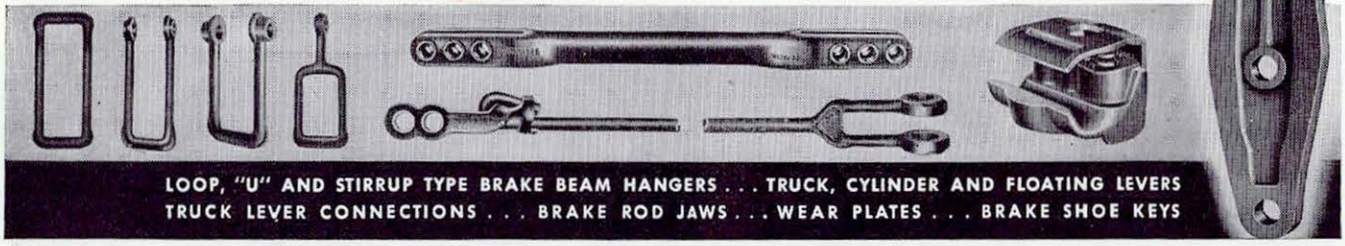
Dependable Jaws

Forged by Schaefer to develop in every part of the jaw the full strength of the Brake Rod.

Write for Catalog No. 445

Schaefer EQUIPMENT COMPANY

KOPPERS BUILDING • PITTSBURGH, PA.



LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS . . . TRUCK, CYLINDER AND FLOATING LEVERS
TRUCK LEVER CONNECTIONS . . . BRAKE ROD JAWS . . . WEAR PLATES . . . BRAKE SHOE KEYS

Red Lead "Soaps"

help make Paint Film Tough...Flexible...Water-Resistant

While maintenance engineers know, by long experience, that Red Lead helps *make metal last* . . . and widely accept it as the standard metal protective paint . . . it remained for modern science to show exactly *why* Red Lead so effectively inhibits rust.

One of the important reasons is Red Lead's ability to react with the vehicle, and produce unique lead "soaps."

These soaps grow to form a tough, impervious, intermeshing matrix within the paint film, as shown in the photomicrograph at right.

The soap formations increase Red Lead's protective power in several ways. For one thing, they *mechanically* reinforce and toughen the paint film.

At the same time they contribute all-important flexibility, allowing movement all along their soft, intertwining projections. This helps prevent the ruptures to which a hard unyielding film is subject.

Moreover, lead soaps slowly form primarily in the dry paint film as it ages. This is where the soap formations impart their greatest benefits. When a paint film weathers and ages, decomposition products of the vehicle are formed. Red Lead's ability to slowly combine with these decomposition products actually enhances the life of the paint film. Red Lead's slow rate of reaction means the film age-hardens at a slower rate. It thus retains a high degree of flexibility, a great factor in its lasting adhesion.

And again, the very structural formation of the soaps, with their dense, impermeable matrix of interwoven fibres, helps to restrict the passage of moisture through the paint film. Metal cannot rust without the presence of moisture.

Specify RED LEAD for ALL Metal Protective Paints

The value of Red Lead as a rust preventive is most fully realized in a paint where it is the only pigment used. However, its rust-resistant properties are so pronounced that it also improves any multiple pigment paint.

No matter what price you pay, you'll get a better paint for surface protection of metal if it contains Red Lead.

***This photomicrograph** shows the distinctive lead soap formations resulting from Red Lead's reaction with the vehicle. Note how the rod-like projections, radiating from central cores, spread out and intermesh. This makes a strong, flexible, interwoven structure, just as individual fibres in a piece of cloth are woven to make the cloth strong and durable. This type of soap formation is unique with lead paint films.*

***Here you see** the standard apparatus used for measuring the water permeability of paint films. With this equipment a measure of the amount of water that passes through a unit of film is obtained.*

Experiments show that a straight linseed oil film allows three times as much water to pass through the film as when the same film is pigmented with Red Lead . . . illustrating once more the beneficial protective action of Red Lead and Red Lead "soaps."

Write for New Booklet—"Red Lead in Corrosion Resistant Paints" is an up-to-date, authoritative guide for those responsible for specifying and formulating paint for structural iron and steel. It describes in detail the scientific reasons why Red Lead gives superior protection. It also includes typical specification formulas. If you haven't received your copy, address nearest branch listed below.

* * *

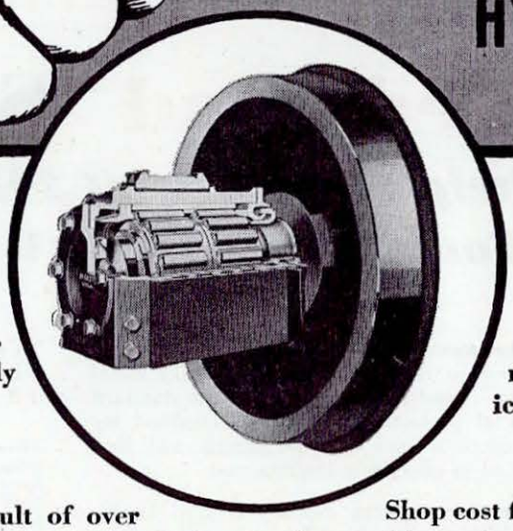
The benefit of our extensive experience with metal protective paints for both underwater and atmospheric use is available through our technical staff.

NATIONAL LEAD COMPANY: New York 6; Buffalo 3; Chicago 80; Cincinnati 3; Cleveland 13; St. Louis 1; San Francisco 10; Boston 6, (National Lead Co. of Mass.); Philadelphia 7, (John T. Lewis & Bros. Co.); Pittsburgh 30, (National Lead Co. of Pa.); Charleston 25, W. Va., (Evans Lead Division.)

Dutch Boy
Reg. U. S. Pat. Off.
Red Lead

TEN EXCELLENT REASONS WHY

RAILROAD MEN PREFER HYATT BEARINGS



SIMPLICITY

Hyatt Journal Boxes are constructed of just a few easily assembled parts.

DESIGN

Present designs are the result of over fifty years accumulated experience in the design and manufacture of better roller bearings.

DEPENDABILITY

Hyatt Railroad Roller Bearings have capacities for carrying loads in excess of A.A.R. axle limits.

TAPER RELIEF

Special patented feature prevents stress concentration at the end of the shrink fit between axle and inner race.

ACCESSIBILITY

Hyatt Journal Boxes can be easily removed. Once removed the journal box and bearing can be completely disassembled for inspection and cleaning without special tools.

LONG LIFE

Thousands are operating with more than a million miles service without evidence of fatigue.

ECONOMY

Shop cost for maintenance of roller bearings and boxes have been found, by railroads, to be considerably lower with Hyatt equipment.

INTERCHANGEABILITY

Hyatt inner races become part of the axles and journal boxes are interchangeable for a given axle size.

REDUCED INVESTMENT

Since Hyatt Journal Boxes are interchangeable, sizeable reductions in spare parts inventories are possible.

FREE LATERAL MOVEMENT

Straight cylindrical construction and lateral clearance at the axle ends allows axles to float laterally in the truck, within predetermined and controlled limits.

WEIGH THESE QUALITIES CAREFULLY WHEN SELECTING JOURNAL BOXES

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION

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HYATT ROLLER BEARING RAILROAD JOURNAL BOXES

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette, and the Railway Age-Gazette. Name registered in U. S. Patent Office.

Vol. 120 March 30, 1946 No. 13

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The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service.

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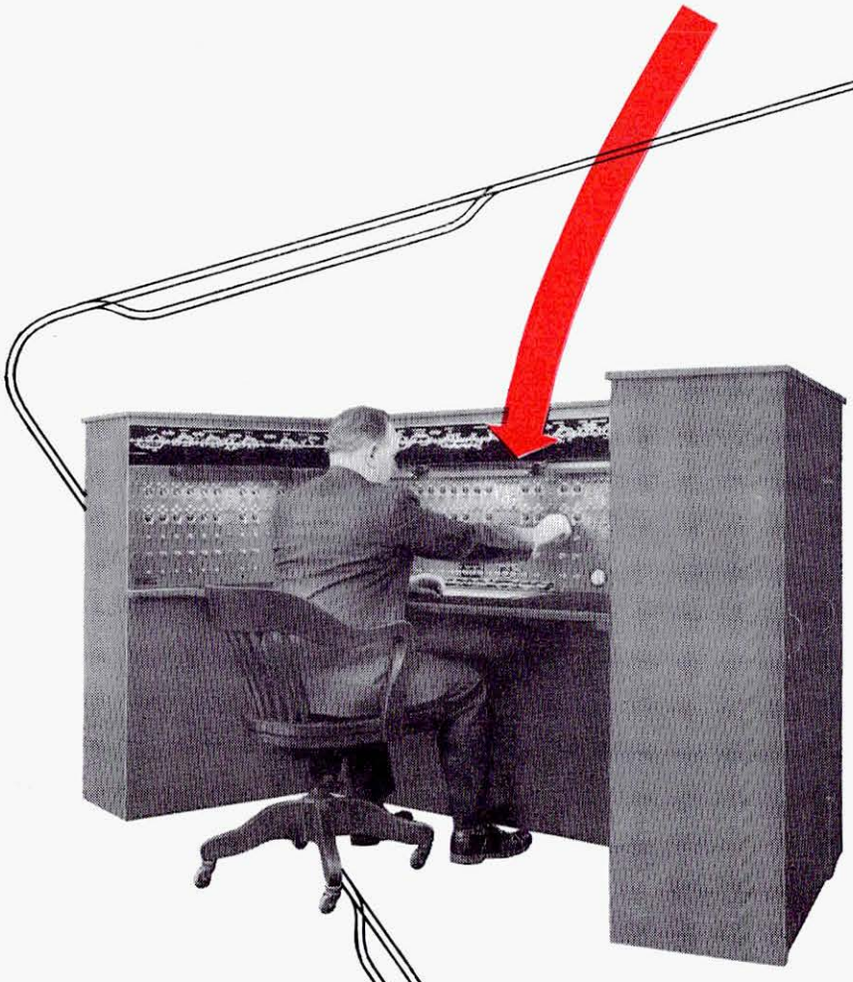
You can plan your operations better when you know where every train is, every minute!



WITH "Union" Centralized Traffic Control, visual indication of the position of every train in the district is displayed on the control machine. Progress of trains is continuously evident so that a meet or pass can be arranged when the location of trains indicates the obvious point for the move. When the location has been selected, switches and signals are rapidly arranged following simple manipulations of miniature levers on the CTC machine.

Written orders for train movements are eliminated, stops are reduced to a minimum, and trains are directed to keep moving as long as unoccupied track is available . . . track capacity is thereby increased and average road time for trains reduced . . . and all because Centralized Traffic Control centers in one machine, at one location, a complete picture and full control of all district operations. Is it any wonder that "Union" CTC saves you more than it costs?

That is why twenty-eight railroads installed new or additional Centralized Traffic Control in 1945. Our engineers will gladly help you plan "Union" CTC for your specific operating requirements.

"UNION" CTC
TRAIN OPERATION BY SIGNAL INDICATION

SAVES YOU MORE THAN IT COSTS!

UNION SWITCH & SIGNAL COMPANY

Swissvale, Pennsylvania

NEW YORK CHICAGO ST LOUIS SAN FRANCISCO

The Week at a Glance

DEPENDABLY ACCURATE: The dependability of the survey of railway employee opinion, sponsored by *Railway Age* and associated publications, has been further tested and corroborated. The reports on the survey, which appeared in the March 2 and March 23 issues, have brought forth voluminous and almost unanimously favorable comment. One railroad officer, however, raised a question as to how there could be satisfactory assurance that a sample of only 1,309 employees could accurately reflect the opinion of more than a thousand times that number, and in particular he wondered whether the opinion shown for railroad employees as a whole would come very close to mirroring that of employees of his company. So separate totals and percentages were compiled from the opinions of that road's employees, and compared with the nation-wide figures. The comparison is set forth and discussed in this issue's leading editorial which finds the closeness of the correlation to be "positively amazing," the few significant variations indicating that the individual road involved has been getting results from its efforts at employee education. When an over-all average thus corresponds with specific instances it meets the test of representativeness, leaving little reasonable doubt that the survey's results are dependably accurate.

●

TWO ALARMS: Expressions of concern about the adequacy of the freight car supply to meet impending traffic demands have come recently from Director J. Monroe Johnson of O. D. T. and Executive Secretary E. F. Lacey of the National Industrial Traffic League. Foreseeing an "avalanche" of traffic ahead, Director Johnson has called upon the railroads to order more cars, meanwhile warning the Civilian Production Administration that materials to build them must be provided. Speaking at American University's Rail Transportation Institute, Mr. Lacey said that shippers are alarmed over the comparatively small number of freight cars now on order.

●

SEAWAY CLEARS HURDLE: The pending joint resolution to approve the U. S.-Canadian agreement for development of the St. Lawrence seaway and power project cleared its first Congressional hurdle this week when the Senate foreign relations subcommittee, which conducted the recent hearings, voted to recommend favorable action by the full committee. The joint-resolution device sets the stage for approval by a majority vote of both branches of Congress, thus obviating the need for obtaining the two-thirds Senate vote which a treaty would require.

●

ELECTRONIC REPORTING: The Rock Island has developed and installed an automatic electronic OS reporting system on its 104-mile line between McFarland, Kan., and Belleville. The installation, described in one of this issue's illustrated feature articles, includes a panel in the dispatcher's office which has lamps that indicate when trains approach and pass outlying unattended sidings and offices. Electronic devices transmit the indications by high-frequency carrier current which is superimposed on existing wires, and thus no new lines and only a limited amount of new electronic equipment is required.

●

COLLEGE MEN: Discussion of the railroad attitude toward the college-trained man is again to the fore in one of this issue's feature articles, which presents a report of the Committee on Transportation, Civil Engineering Division of the Society for the Promotion of Engineering Education. The committee, headed by Professor Harry Rubey of the University of Missouri, urges upon the railroads immediate action if they desire to compete with other industries for the best technically trained graduates. It finds that the colleges, interested and anxious to cooperate, will remain helpless until most transportation companies and departments also become sufficiently interested to assign personnel representatives to visit the institutions from which they expect to recruit graduates.

●

WAGE CASES: The public-hearings phase of the arbitration wage proceedings was concluded this week with the closing arguments of carrier and employee counsel. The boards then took the cases under advisement, decisions being due April 3 unless an extension of time is arranged. Meanwhile the emergency board, created to pass on the wage and rules demands of the non-conformist Brotherhood of Railroad Trainmen and Brotherhood of Locomotive Engineers, carried on and heard A. F. Whitney assert that the two unions have the "guts" to strike if things don't turn out to their liking.

●

CALL FOR UMBRELLA: The Maritime Commission and War Shipping Administration, with support from the secretaries of War, Navy and Commerce, have asked the Interstate Commerce Commission to investigate railroad rates for services competitive with those of domestic water carriers. The latter, say the petitioners, are faced with a "serious threat of annihilation" if they undertake to resume private operation in the face of the present adjustment of water-competitive rail rates. The shipping agencies, they also say, have the shipper's interest at heart—they fear that he may be deprived of "untold benefits resulting from wholesome" water competition.

●

MODERN TOOLS PAY OUT: "Modern Locomotives Need Modern Tools" is the title of one of this issue's feature articles wherein J. R. Phelps, general machine shop foreman of the Santa Fe at San Bernardino, Cal., and E. N. Statley, apprentice instructor of the Southern Pacific at Sacramento, give specific examples of reduced costs effected by adequate shop equipment. "If it is true that no railroad is better than its motive power," says Mr. Phelps, "it is also true that this same motive power will be maintained in line with the tools furnished to do that job." As Mr. Statley puts it, the railroads must have modern machine tools if they are to match the efficiency of other industries.

E. J. & E. DECISION: Deciding the *Elgin, Joliet & Eastern* vs. *Burley* case after reconsideration, the Supreme Court has adhered to its previous holding that a National Railroad Adjustment Board award in a case growing out of employee grievances does not deprive affected employees of the right to ordinary court processes to obtain judgment if it can be shown that such employees had not specifically authorized the union designated as the exclusive bargaining agent to act in their behalf for such purposes. Thus the Adjustment Board remains confronted with the same confusion which has occasioned its virtual shutdown since the time of the court's prior decision last June. While the present majority opinion includes some discussion calculated to interpret the ruling as one less drastic than it looked, Dissenter Frankfurter sees only "new complexities" and "mischiefs" added. The decision is reported back in the News Department.

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MEXICAN REPORT: O. M. Stevens, president and general manager of American Refrigerator Transit Company, served in the 1942-44 period as head of the U. S. Railway Mission to Mexico, thus getting an inside view of the railroad situation and other conditions below the border. Mr. Stevens got an unfavorable impression of the control of Mexican roads by labor unions and found that "class war" theories subvert necessary discipline and reduce efficiency. A recent address wherein he reported on his observations is covered in one of this issue's feature articles, while the editorial pages contain our comment on the expression.

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NEW WATERWAY ECONOMICS: That ingenuity which has always aided the Army engineers in their search for "economic justification" in proposals for new waterway projects took on curious refinements in last December's report approving work on the Big Sandy river and its tributaries, the Levisa and Tug forks, located in Kentucky and West Virginia. "Savings" from the $82,300,000 project itself, by any method of calculation, were found to be insufficient to justify it, so the engineers adopted the new device of "feeder value," their finding of "economic justification" for Big Sandy being based on the benefits or values from connecting waterways such as the Ohio and Mississippi rivers and the Illinois waterway. This new economics of the waterways is appraised by Dr. C. S. Duncan, A. A. R. economist, in a feature article herein.

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STAINLESS W: Carnegie-Illinois Steel Corporation has introduced Stainless W, a precipitation hardening 18-8 stainless steel which overcomes the limitations normally encountered with such steel. An account of this new product's development was given in a paper by Raymond Smith, E. H. Wyche and W. W. Gorr, which was presented at a recent meeting of the American Institute of Mining and Metallurgical Engineers. A condensation of the paper is published as one of this issue's feature articles.

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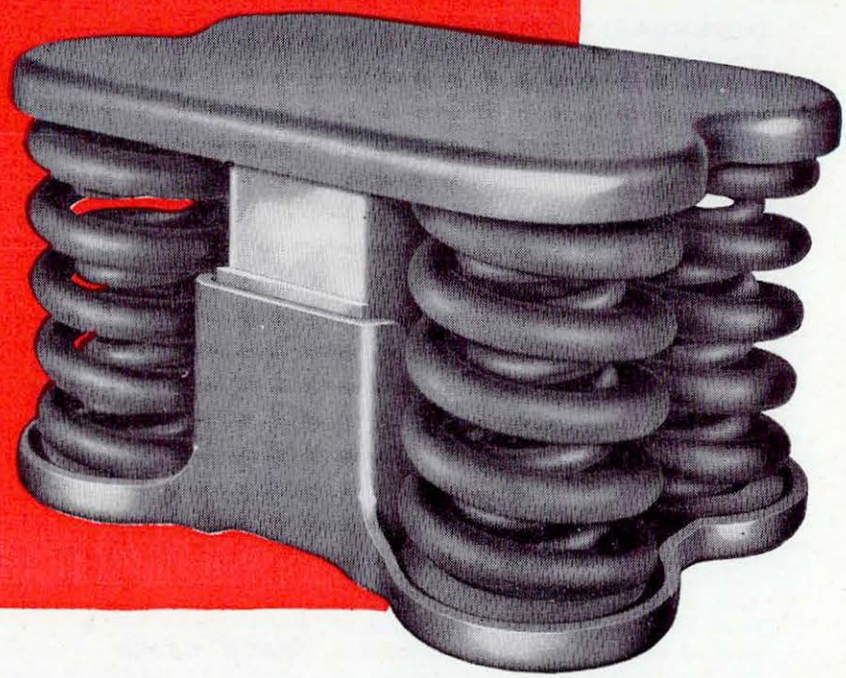

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RAILWAY AGE

Do Polls Accurately Reflect Opinion?

The dependability of the results of the survey of railway employee opinion, reported in our March 2 and March 23 issues, has been further tested and corroborated in an interesting manner. The comment on this survey has been voluminous and almost unanimously favorable—the single disapproving voice, so far, having been the inevitable bark from the publication "Labor." One well-informed and highly capable officer of a large railway did, however, raise a question as to how there could be satisfactory assurance that a sample of only 1,309 employees could accurately reflect the opinion of more than a thousand times that number. In particular, he wondered whether the opinion shown for railroad employees as a whole would come very close to mirroring that of employees of his company, which, as it happens, has put forth more than average effort in employee education.

Corroborative Evidence

This comment was passed on to the Opinion Research Corporation, which, on its own initiative and at considerable labor and expense, sorted out from the punch cards of the whole survey those which recorded the opinions of the employees of this particular company. Separate totals and percentages were then compiled for this one company, and the results were compared with those for employees on a nation-wide basis. A few representative items from this comparison are given in the accompanying table. Since this company has made greater than average effort to inform its employees about company earnings and to promote courteous treatment of patrons, it is not surprising that opinions of its employees make a somewhat favorable comparison with those of railroad employees as a whole on such questions as the magnitude of railroad earnings and the desirability of special schooling of employees in how to deal with the public. On most questions, however, and on the average of all questions, the closeness of correlation between the opinions of the employees of this one railroad and those of employees as a whole is positively astonishing.

Those familiar with the requirements of statistical sampling will recognize that the close similarity of the one-railroad answers to those of employees as a whole affords strong evidence that the data are homogeneous, with the corollary that a sample of even microscopic proportions—if it is carefully selected to afford a true cross-section—probably reflects quite accurately the opinion of employees as a whole. In non-technical language, an average is representative when it corresponds with specific instances. If there are five men in a room who are 6 ft. tall and five men who are 5 ft., it does adequately describe the stature of these men to say that their average height is 5½ ft. But, if there is only one five-footer and one six-footer in the room and the heights of all the rest vary between 5 ft. 3 in. and 5 ft. 9 in., with three of them exactly 5 ft. 6 in., then to say that the average height of the group is 5½ ft. "means something." The similarity of the one-railroad data in this survey to the averages for the whole industry—taken in conjunction with parallel similarity of the averages as between territories—is convincing evidence that there is a fairly uniform pattern of employee thinking about the railroads throughout the country. It follows that there can be little reasonable doubt that the report of this opinion as presented by this paper is dependably accurate.

Employee Opinion—Comparison Between One Large Railway and the Industry as a Whole

Opinion expressed:	% of employees saying this: On RRs as a Whole	On Railway "x"
RRs did best wartime job they could	89	88
Favoring wartime government operation of RRs	9	9
If starting to work again, would go railroading	62	62
Chances to get ahead are good	40	43
Present emphasis on seniority is about right	62	58
No change needed to make my job better	49	56
Present training program needs improvement	57	58
Immediate superior rated as "good"	66	68
Present pension arrangement unsatisfactory	57	61
Know company pays total cost of job insurance	31	33
Median estimate of RRs' 1944 return on investment	27	17
RR officers doing all they can to meet competition	70	75
All forms of transport have equal chance at profit	64	68
Favor "full crew" regulations	79	81
Favor regulation limiting train length	64	66
Employees need schooling in handling the public	63	78
Satisfied with present information on RRs	73	75

Educational Efforts a Success

The few significant departures of the averages of this one railroad from the data as a whole—as shown in better-than-average understanding of railroad earnings and of the desirability of schooling employees in dealing with the public—indicate that its efforts at employee education have borne fruit. On the other hand, the figures do not show that this railroad has done any better than the industry as a whole in bringing employees to an appreciation of the railroads' competitive handicaps and of the economic consequences of such hindrances to productivity as "full crew" and train limit restrictions.

It is quite likely that adequate employee education in the economics of railroading cannot be achieved merely by making the information conveniently available to them—although, of course, such availability is the necessary first step in the desired direction. Not many men automatically acquire a taste for an unfamiliar dish—whether it be olives, caviar, or statistics—merely by having the dish placed before them. A few venturesome souls may be tempted to a trial by this device, but some additional incentive is usually needed.

An instrument to this end, which was in many respects ideal, was made available to the railroads about a dozen years ago in the form of spontaneous organizations of railroad employees which sprung up in about half the states and which had as their purpose the promotion of voting strength behind legislative measures to establish more equitable competitive conditions as between the railroads and other forms of transportation. The only inducement to such activity by employees was the psychological one of self-esteem arising from the recognition they received for the performance of a job which they believed to be in the interest of their fellows and their communities. That incentive was sufficient, however, to induce thousands of employees to learn the facts about their industry so that they could argue in its behalf. This movement did not meet with favor among the preponderance of legislative representatives of either the railroads or the unions—except in a few notably isolated instances—so this instrumentality, promising as it was both legislatively and educationally, was quietly scuttled in all but one or two jurisdictions.

In all likelihood the opposition to this device is still sufficiently powerful and unenlightened to prevent its revival, but ingenuity can doubtless contrive others which, from an educational standpoint, would be equally effective. A vigorous effort in this direction ought to be put forth. Employee opinion is the principal determinant of a large part of vital economic and political policy by and toward the railroads. To have such power exercised by those who lack adequate understanding of what they are doing is like putting an inexperienced driver at the steering wheel of a speeding automobile. Such a driver is not likely to do much good either to the car, to himself, or to the other traffic on the road.

Don't Sell Customers Short on Good Service

A few days ago at the A. R. E. A. Chicago convention, the district railway sales manager of a prominent railway supply company was somewhat astonished when a member of the association, meeting him unexpectedly, immediately extended his hand and called him by name, particularly since this was their first meeting in more than 12 years after their business association had been terminated.

Contrary to first assumption, the engineer had not taken a memory course designed to help win and influence friends. During the early '30s that sales manager of today was very closely associated with servicing the railways in his territory in conjunction with the use of his company's products. In the course of his work he occasionally came in contact with that railway engineer and it was the association of his name with his company's service, in conjunction with the use of their products, that so impressed the railway engineer that even 12 years later he was able to call his friend by name at the A. R. E. A. convention.

Good service makes lasting impressions and, conversely, lack of adequate service may establish decidedly unfavorable prejudices. Comparatively minor adjustments and "know-how" often spell the difference between the successful use and failure of products in railway service. No amount of correspondence will clear up misunderstandings and insure correct application and broader use as quickly and effectively as periodical calls by intelligent representatives thoroughly familiar with their products and their applications.

Carefully planned, well written and effectively illustrated promotion literature often forms an indispensable part of good selling practice, but, in any event, it is poor business to underestimate the customer's need for good service. This applies particularly to newly designed products, and often to well-established lines as well. The chances are that within the next few years will come hundreds of new developments in all phases of railroading, all aimed at stepping-up efficiency. Service calls also will help keep home offices on their toes, help anticipate new railway needs, and will foster new and better designs that will be important in tomorrow's position of the railroads in competitive transportation.

Restriction of service calls may sometimes seem necessary, to keep down expenses, but all factors should be weighed carefully before substituting correspondence for personal contacts. Railway men long remember and appreciate good service.

The Need for Economy Is Greater Than Ever

The volume of shop equipment purchases by the railroads in 1944 and 1945 indicated that the railroads had, perhaps, finally forsaken the attitude toward maintenance of equipment facilities which had been evident for at least 15 previous years, and that they had decided to do something about modernization. Those who sell shop equipment to the railroads, however, report some rather disturbing evidences of what may prove to be expensive hesitation—disturbing because it indicates indecision on the part of mechanical people that does not augur too well for the future. The indecision appears to arise from lack of information.

There will be mechanical officers who will be able to point out a great deal that they have done on their own roads to improve the situation as they face future problems. This will prove that there are always exceptions.

Shop equipment sales engineers, since the first of this year, are meeting an increasingly large number of railroad men who apparently have suspended their thinking about investments in improved maintenance facilities for four major reasons: (1) The uncertainty about wage increases; (2) The prospect of large installations of Diesel-electric power obviating the necessity for repair

facilities for steam power; (3) Uncertainty as to the character and extent of repair facilities needed for the future; (4) The possibility of filling their needs, at low cost, from war surplus equipment.

Let's consider the wage increase first. To quote one mechanical officer, "no one knows just how much wage increases are going to run up the operating expenses of the railroads." On the other hand, to quote another mechanical officer, "unless some way is found drastically to reduce the operating expenses of the roads there seem only the alternatives of increased rates, bankruptcy or government ownership." To this it may be added that to any intelligent and courageous executive there need be no doubt as to what to do, and when; namely, to start figuring out how to effect permanent reductions in expenses, *now*. "How to reduce expenses" for too many railroad officers means "lay off forces, go on short time and don't buy anything." That kind of medicine is no cure for the present ailment—it merely eases the pain temporarily.

As to the mechanical officer who is basking in the sunshine of the glorious future when all the power will be Diesel-electric and no shops will be needed, three observations may be made: (1) In the period from 1920-1925 the electrification enthusiasts expounded much the same philosophy and predicted the early demise of steam power. (2) On the railroad operating the largest number of Diesel-electric locomotives today, the Diesel total represents only about eight per cent of its total motive power inventory. (3) Throughout the lifetime of the youngest chief mechanical officer of any railroad now owning 500 or more locomotives there will still be steam locomotives to be maintained.

So, there should be no indecision on this score because (a) one need only look at the railroads operating large fleets of electric locomotives (and, after all, a Diesel-electric is nothing but an electric plus a Diesel engine) and it will be observed that their repair facilities are rather extensive and (b) as the number of steam units decreases and they are replaced either with modern steam or even Diesel-electric, the obsolete shop facilities, designed and built for a by-gone day, will become more and more an expensive luxury because of their inefficiency.

To those who cannot make up their minds as to the character and extent of repair facilities needed for the future, the suggestion may be made that, if they cannot find out from their own engineering departments, they had better hurry and hire some one who does know how to find out—before the other industries get all the best men.

As to the availability of war surplus equipment, the railroad industry should have found the answer to that one after the last war. However, it might be well to remind those whose zeal is to save a few investment dollars, at any cost, that most war surplus tools were not built to outlast the war; that most of them were used more actual hours in 3 or 4 years than they would be used in a railroad shop in 10 to 20 years—they're probably worn out already. They were not designed for railroad work; they must be bought without a manufacturer's guarantee, and parts and service in the future will be a matter of uncertainty.

No industry, least of all the railroads, faced with what all industry must contend with in the years to come, can afford to procrastinate in the matter of ways and means to cut its cost of production. The sooner the start is made the better.

Unions in the Saddle

A shocking account of conditions on the railways of Mexico is presented in this issue—in the report of an address by O. M. Stevens, who headed the U. S. Railroad Mission to that country, and who spent two years with our neighbor to the south in an official position which gave him an unparalleled opportunity for observation. His competence to judge the difference between efficient and inefficient railroading will not be questioned.

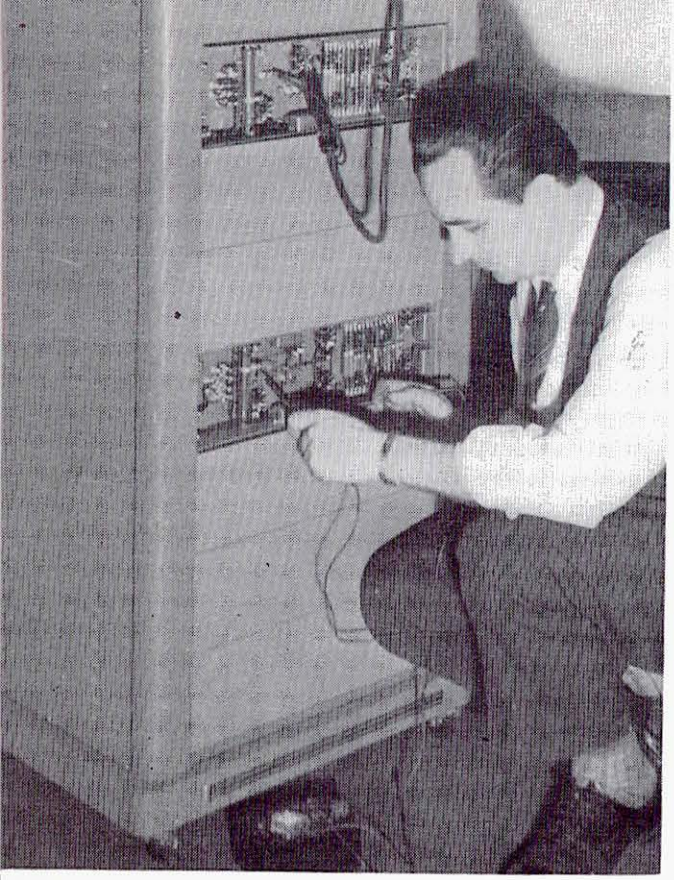
Mr. Stevens reports that the railways of Mexico have more than twice as many employees as they need, that there is a colossal waste in their operation, that service to the public is entirely inadequate and abominable, and is a deterrent to the effective functioning of the nation's economy. If there is anyone with opportunities for observations parallel to those enjoyed by Mr. Stevens, and of equal competence to judge good and bad railroading, who believes that the sorry picture of conditions as he describes them should be in any way modified, the hospitality of these pages is open to him. We do not question the accuracy of Mr. Stevens' report, but when conditions are described in such terms as he has felt obliged to use, it is only common fairness that an opportunity be given to the "other side" to be heard—if there is any "other side."

How the Mexicans choose to operate their railways is strictly their own affair and Mr. Stevens' purpose is not to criticize them, but rather to point out how the conditions which have arisen below the border might also "happen here."

What has caused the paralysis of Mexican transportation is the complete lack of discipline under the present management of the railways by unions under left-wing domination. Even the Russians have found out that discipline is vitally essential in running a railroad or winning a war. After the debacle of the first Finnish war, when political commissars accompanied the troops into the field and destroyed discipline, the Soviet authorities were wise enough to keep the bureaucrats at home in Moscow when the German war broke out.

Union dominance as it reigns in Mexico seems to be the ideal condition which some of our own labor leaders would like to bring to pass, also, north of the border; but even they can scarcely desire the *results* of such dominance as Mr. Stevens describes them. In Mexico, once an employee gets on the payroll he is there to stay, regardless of his efficiency or lack of it. If a superintendent or a general manager reproves anyone for even such an infraction as causing a bad wreck, the offending officer is likely to be fired unless he apologizes.

If there is any lesson which history teaches more completely than any other it is that unlimited power is invariably abused. People interested in the welfare of transportation—either as employees or officers or patrons—ought to take a good look at what has happened south of the border, and why; and then resolutely attack here at home any incipient causes for such a tragic debacle as they may find operative in a less advanced stage.



Above—For each OS point in the field there is an electronic device as above mounted in a cabinet in the dispatcher's office for detecting the carrier frequency. Left—A cabinet in the dispatcher's office at Kansas City shelters the electronic equipment. View shows Rock Island electronic technician testing equipment at rear of cabinet

Dispatcher has track model panel with lamps which indicate arrival and departure of trains at unattended sidings or offices, on 104 miles of secondary line

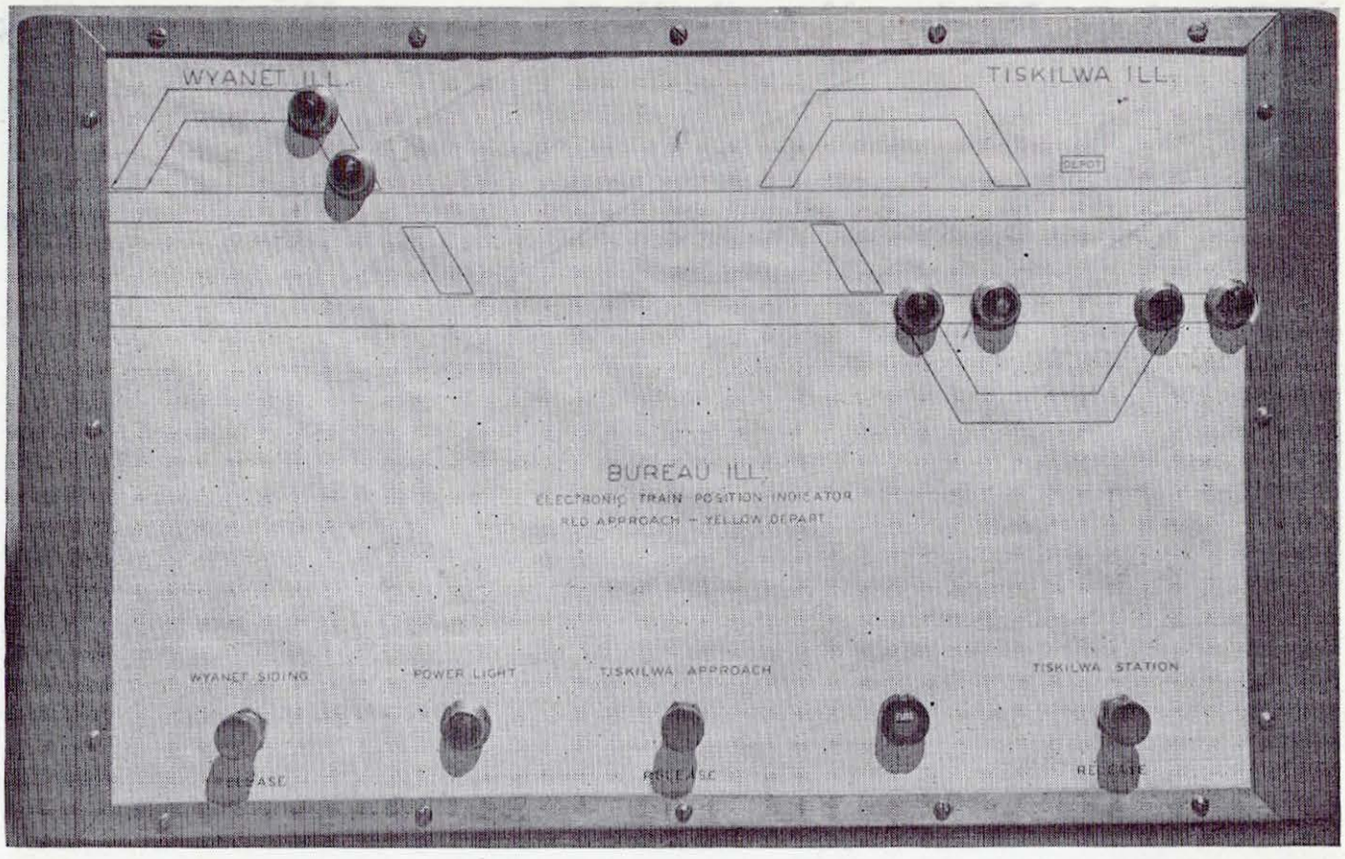
Automatic OS Reporting of Trains by Electronics on the Rock Island

THE Chicago, Rock Island & Pacific has developed and installed an automatic electronic OS system including a panel in the dispatcher's office which has lamps that indicate when trains approach and pass outlying unattended sidings and offices. By means of electronic devices at the field locations and in the office, the indications are transmitted by high-frequency carrier current which is superimposed on existing telegraph, telephone and signal line wires. Thus, no new line wires and only a limited amount of new electronic equipment is required, and, therefore, the cost of an installation is small in comparison with the benefits which may be derived.

As applying to reports of passing trains, the letters OS stand for "out of station". Experimental installations of this electronic OS system were made at Bureau, Ill., and a few other locations. The first project including a series of OS points on an extended mileage was on the Clay Center line which extends for 104 miles between McFarland, Kan. on the Golden State Route, and Belleville, Kan. on the Rocky Mountain Route. The panel board for this installation, which includes seven OS points, is located in the dispatcher's office at Kansas City, Mo., 101 miles east of McFarland on the Golden State Route.

The Clay Center connecting line handles 2 passenger and from 2 to 12 freight trains daily, in addition to a local freight train each way daily except Sunday. This territory is single track, and train movements are authorized by timetable and train orders. On account of the light traffic and the comparatively small amount of local business, the open offices for handling train orders and for reporting the passing of trains are several miles apart, especially at night when agent-operators are off duty at many of the small towns on this line. Under these conditions the dispatcher had difficulty in knowing the locations of and progress being made by trains. For example, a freight train might take siding at some outlying location to wait

An oscillator at each field OS location produces and superimposes the carrier frequency on the line wires for the indications in the dispatcher's office at Kansas City



The panel board at Kansas City is similar to the one installed at Bureau, Ill., shown above, but is larger

for a meet with a superior train, but the dispatcher would not know where the first mentioned train was until it showed up later at an open office. Thus the requirements were for a system with a panel in the dispatcher's office which, as applying to each unattended field location, would (1) indicate when a train arrived, (2) indicate when the train departed, (3) hold the indications until the dispatcher acknowledged them, and (4) make a graphic record of the arrival and departure times of the trains as well as the time when the dispatcher acknowledged the indications.

Operation of the Indications

On the track diagram in the dispatcher's office, there are two lamps at each of the symbols which represents an outlying unattended siding or office. One of these lamps has a red lens and the other is yellow, both lamps being normally dark. Below each such set of lamps and near the bottom of the panel there is a push-button marked "release". The panel board at Bureau, Ill., as shown in the accompanying illustration, has three such sets of lamps and buttons. The panel in the dispatcher's office at Kansas City for the 104 miles of the Clay Center line has seven sets of lamps and buttons.

When a train approaches one of the field stations, the red lamp at the corresponding symbol on the dispatcher's panel is lighted. When the rear of the train passes, the yellow lamp is lighted. Both lamps remain lighted until the dispatcher acknowledges by pushing the release button corresponding to these two lamps.

A continuous, graphic, chronological record of the arrival, departure and acknowledging times of the OS indications by the dispatcher is provided by an 18-pen Esterline-Angus recorder, located in the dispatcher's office. The strip chart is driven continuously at 3 in. per hour so that one roll 90 ft. long is sufficient for 15 days. Reading of the chart is facilitated by brown horizontal lines of graded width at 2, 10 and 60-minute intervals, with marginal numbers at hourly intervals.

Minimum of Apparatus

At each field OS location there is an assembly of electronic equipment known as a single-frequency basic audio oscillator which, when set in operation, produces a certain carrier frequency assigned to that respective OS station. Each such oscillator is in operation only while a train is passing, this control being accomplished by either a track relay or a pair of coils, one coil being buried on each side of the track. Passage of a train between the coils distorts the field which indirectly sets the oscillator in operation to superimpose the carrier frequency on the line wires. The seven frequencies used on the Clay Center project are 8,000, 9,000, 10,100, 11,400, 12,800, 14,400 and 16,200 cycles per second. At the office, the carrier frequency is detected by electronic devices which indirectly control the red and yellow lamps for the corresponding field location.

This OS system was designed, developed and built in the Rock Island electronic laboratories at Chicago, under the jurisdiction of C. O. Ellis, superintendent of communications, and E. A. Dahl, electronic engineer, in collaboration with C. R. Swenson, signal engineer. The panel board, sheet-metal cabinet and individual equipment chassis in the dispatcher's office, as well as the oscillator chassis in the field for this installation were manufactured by the Tempo Manufacturing Company, of Chicago. Transformers were furnished by the Sola Electric Company and the Chicago Transformer Corporation, both of Chicago. Coils were supplied by the United Transformer Corporation of New York, and the relays were furnished by C. P. Clare & Company, of Chicago. Radio tubes were supplied by the Radio Corporation of America and the General Electric Company. The remainder of the radio equipment was furnished by the Allied Radio Corporation and the Newark Electric Company.

"Feeder Value" of Tributary Waterways

Curious reasoning employed by Army Engineers to "justify" a branch-line river project—Since the venture will cost more than it will "save," Engineers seek to make the figures balance by imputing main waterway "savings" to the feeder

By DR. C. S. DUNCAN

Economist, Association of American Railroads

THE Army Engineers, who constitute the federal government's Rivers and Harbors Board, approved on December 10, 1945, a project for the improvement of the Big Sandy river and its tributaries, the Levisa and Tug forks, located in Kentucky and West Virginia. Construction costs of the project are estimated at $82,300,000, exclusive of $100,000 for navigation aids—for it is to be a lighted channel. Annual charges, consisting of an amortization charge on the basis of a 50-year service life with interest at 3 per cent on the unamortized portion of investment and the cost of maintenance and operation, are estimated at $4,190,000. Potential tonnage consisting solely of coal is set at 8,300,000 tons annually. Prospective "savings" are computed at $6,700,000, "a favorable ratio of costs ($4,190,000) to benefits ($6,700,000) of 1.0 to 1.6."

There are some unique features about this project and the method by which it is declared to be justified. One is that not enough water can be found in the upper stretches of the branch streams for continuous navigation and, hence, water must be pumped from a lower reservoir into the stream above the dam and thus used twice. The second is that savings from the project itself, by any method of calculation, were found to be insufficient to justify it and it became necessary to resort to what is called "feeder value." This term means the allocation to the Big Sandy project of benefits or values from connecting waterways such as the Ohio and the Mississippi rivers and the Illinois waterway.

Savings on the project were calculated by comparing a *barge cost* of four mills per ton-mile, or 33 cents over the entire stretch, with a *railroad rate* of 55 cents to Catlettsburg on the Ohio, plus 7 cents per ton transfer charge to barges on the river, a total of 62 cents. The difference is 29 cents which, multiplied into 8,300,000 tons, yields a total annual "saving" of $2,407,000. This sum compared with the annual cost of $4,190,000 leaves a deficit of $1,783,000 and produces a ratio of cost to benefits of 1.0 to 0.58. On this basis, which is the one generally used by the Army Engineers, the project would have to be condemned.

And yet the project is approved. The approval is based upon "feeder value."

The Board states in its report approving the project that it feels—

> ". . . only a small amount of coal from the Big Sandy area will actually move on the Ohio river unless the improvement is made so that the coal can be placed in barges at the source on the Tug and Levisa forks, and that in estimating the savings in transportation charges to result from the improvement, the charges for shipment by water on the proposed and connecting channels should be compared with the actual shipping charges by routes now available."

These connecting channels are the Ohio and Mississippi rivers and the Illinois waterway. Savings through to destination as far away as Chicago and the Twin Cities are estimated to average about 80 cents per ton. The 8,300,000 tons at this increased figure of savings gives a total in round numbers of $6,700,000 and this amount of savings, allocated wholly to the Big Sandy project, results in the kind of ratio of costs to savings that may be comfortably reported—1.0 to 1.6.

Thus the project is approved on the basis of "feeder value."

This is a startling new device for securing "economic justification." One might have thought that the old method of "economic justification," where consideration was confined to a given project, was a sufficient torturing of economics. It appears that these Army Engineers in some curious fashion have come really to believe that savings in transportation costs to shippers as a result of subsidy from the federal government are a real and substantial thing in revenues to the government. The fact is, however, that from the point of view of the government all savings of this kind are not real. Certainly they are not revenues. "They are, therefore, not savings in an economic sense," said the former Coordinator of Transportation in his discussion of "Public Aids," "but represent in large part the transfer of costs from users to taxpayers" (Vol. III, p. 97). And in even more striking phrase the same report says of the savings from the operations of the government-owned Inland Waterways Corporation:

> "Viewed in ordinary economic terms the savings are unreal; private enterprise could not survive more than momentarily if it had to look upon savings to its customers as sufficient recompense for the losses it incurs." (Ibid, p. 250.)

Economic justification to be truly economic must rest upon this basic principle—the one who pays is the one who receives; the one who receives is the one who pays. No economic justification can be had where costs are paid by those who do not benefit. There can be no economic justification in government expenditures which result in merely taking traffic away from another agency—here the Chesapeake & Ohio and the Norfolk & Western—which parallel these streams, and giving it to another agency. There can be no economic justification for government expenditures which result in merely taking markets away from one and giving them to another, or in duplicating existing transportation facilities, creating surplus capacity, producing no new traffic, or in using the taxing power of the government or socialized credit of the nation to make improvements for use by private enterprise and by individuals for their own gain but to the detriment of others.

The ratio of costs to benefits as generally used by the Corps of Army Engineers, therefore, can serve as no true basis for economic justification. The reason is that *the costs are to the government while the benefits are to a few* who are in a position to use the facilities.

Here, however, is another turn of the screw. For this project the engineers propose to pump in water to make it navigable and also to pump in "savings" to make it pay. The method needs examination.

With respect to the idea of "feeder value" as to this particular project, its fallacy can be demonstrated. In discussing the estimated savings to be realized by shippers of coal on the Big Sandy project, as noted above, a figure of 29 cents per ton, the difference between 33 cents by barge and 55 cents by rail, plus 7 cents transfer charges at Catlettsburg, Ky., is used. It will be noted that this comparison is between transportation costs that would place the coal in either case in barges on the Ohio river. Whether it came there from the mines by rail or by water, it is there. It is in

barges. It is practically at the same point on the same river.

From this point on to destination, every advantage that might be derived from the improvement of the Ohio, the Mississippi or the Illinois waterway would accrue in the same manner and to the same extent whether the first leg of the journey was by rail or by barge. There is, therefore, no value to impute unless a value is imputed to the railroad as well as to the Big Sandy project. There is no value that can be imputed to the water line alone.

In a broader aspect, the primary principle with which to start, simply stated, is that traffic and savings or benefits should be counted only once. The Board of Engineers has had trouble enough in its commendable efforts to eliminate duplications in traffic, both on a single waterway and on connecting waterways. Accuracy in the reports has suffered from the fact that traffic moving along a stream stands a fair chance of being counted as it passes through each lock and as it passes over a connecting channel. Duplicate tonnage would mean duplicate "benefit" or "saving." The Board has wisely endeavored to count traffic on a waterway but a single time.

It follows, therefore, that if traffic moving via a tributary, the Big Sandy, for example, out on to the main channel, the Ohio river, is to leave behind it through the process of imputation or allocation of "feeder value" all the savings or benefits which may develop from the movement of that traffic over the main channel, then neither the traffic nor the savings or benefits can rightly be counted again. In this case of the Big Sandy, if the principle of "feeder value" or imputed value be adopted, there will be moving on the Ohio and other waterways a volume of coal traffic, say, 8,300,000 tons, without contributing a single ton or ton-mile, or one iota of savings to these main streams for the reason that all of these things have already been allocated to the Big Sandy.

The Army Engineers can not have stopped long enough to think this matter out in their haste to find justification for the Big Sandy project. Unexpected results arise from its more general application. For instance, the Big Sandy itself is formed by the confluence of the Tug and Levisa forks on which the coal is situated. This coal would not move on the Big Sandy if it did not originate on the forks. Hence the tonnage or the savings or benefits on the Big Sandy should be allocated or imputed to the forks. If this be done, where can economic justification be found for canalizing the Big Sandy section, or the three expensive dams or necessary dredging and the revetment of the banks?

It is a fact also that the Ohio river has other tributaries. The principle should be made to apply to them in the same manner as to the Big Sandy. Let us see what happens in that case.

For the year 1940 the Chief of Engineers in his annual report on "Commercial Statistics" for waterborne traffic gives the total vessel traffic on the Ohio river as 29,546,388 tons. In the same year there floated out into that river "outbound traffic," preponderantly coal, defined as being "traffic moving from one waterway into another," in tonnage as follows:

	Tons
From the Monongahela	10,908,024
From the Allegheny	1,388,297
From the Kanawha	2,473,340
From the Cumberland	87,484
Total	14,757,145

If to the above figure there be added the tonnage of sand and gravel dredged from the bottom of the river, a commodity for which no expensive improvements can be or ever have been justified, amounting to 5,257,945 tons, there is a total of 20,014,090 tons to be excluded from the Ohio river. This would leave a total tonnage for its economic justification of 9,532,298 tons.

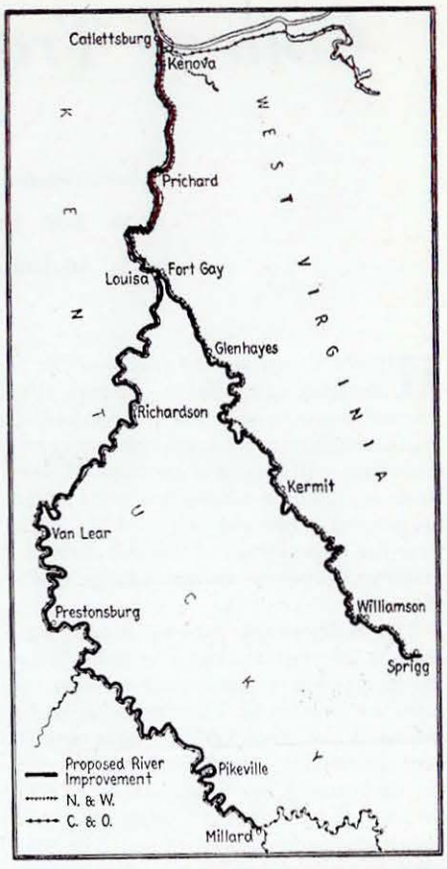
On this river prior to the inauguration of the present canalization project in 1910 there was carried over 10,000,000 tons annually of freight traffic, a greater amount than is left to the river after all the expenditures for the improvements.

The Board of Investigation and Research, which recently issued a report on "Public Aids to Domestic Transportation" has calculated the annual cost of the Ohio river, without allocation to subsidiaries, for the year 1940 at about $10,251,820. This would mean, as related to the 9,532,298 tons, a cost to the federal government alone of at least $1.10 per ton. On this basis, economic justification for the Ohio project is left without foundation.

There would be equal logic in imputing feeder value to the railroad line that hauled coal to Catlettsburg for loading into a barge on the Ohio river. Waterway operators have always claimed that they could not live on port-to-port traffic alone and successfully sought legislation in the Denison Act of 1928 to compel the establishment of through routes and joint rates with the railroads. The Army Engineers have not yet suggested, however, an imputing of feeder value to the railroads for their part of the haul but it could be claimed just as logically as here. The traffic that moves by rail to the port would not be available for water transportation unless it so moved.

In defining the term "through traffic" the report by the Chief of Engineers on "Commercial Statistics" on waterborne traffic states (p. xii, 1941):

"Since waterways bearing tonnages neither loaded nor discharged at points thereon are entitled to that traffic, such movements are termed 'through traffic.'"



The proposed river improvement in relation to the N. & W. and C. & O.

Under the theory of feeder value used in connection with the Big Sandy project, however, it becomes only ghost traffic, for the savings and benefits, the tons and ton-miles, are all imputed or allocated to the tributary. The waterway bearing the tonnage may be "entitled to that traffic" but it can not get it under this theory.

If the savings and benefits are to be carried back to the Big Sandy, then in all reason so also should the losses. What about imputed losses? If the Big Sandy is constructed and does carry the traffic prophesied for it, what will be the effect upon other waterway projects constructed and maintained at government expense which will have to compete with it? In connection with this project, no claim is made that there will be a greater sum total of coal consumed. Ample supplies of coal are available. It is claimed only that coal moving over this river when improved will move at so great savings that it will displace other coal in important markets.

As has been shown, coal is now moving down the Monongahela, Allegheny and Kanawha rivers on to the Ohio. It seems inevitable, therefore, that if this particular project is as successful as anticipated there must necessarily be a consequent decline in traffic moving on these competing waterways. If this be

(Continued on page 680)

College Trained Men—Now or Never

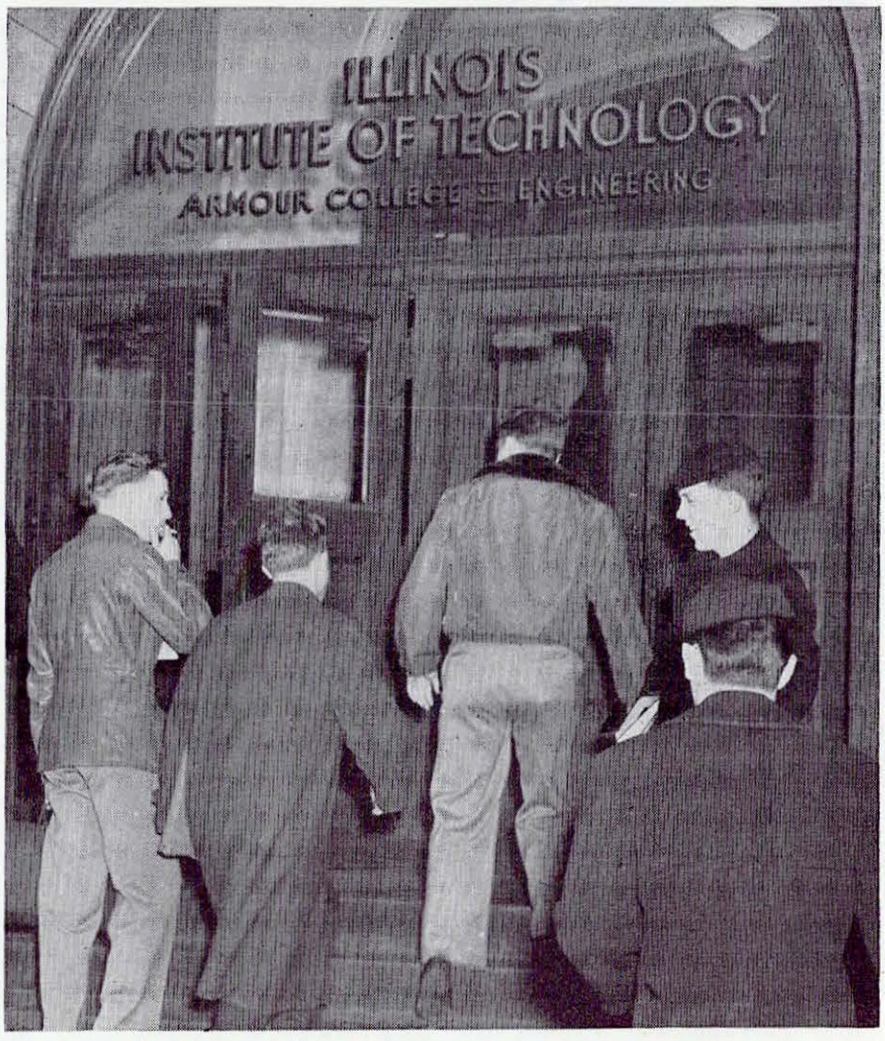
Educational fraternity of the country appeals to the railways for immediate action if they desire to compete with industry for best technically trained graduates*

HIGHLY competitive post-war inter-industry competition demands that immediate steps be taken to re-establish transportation interest and courses in engineering colleges, and perhaps in colleges of business administration. These are now at a low ebb, while at the same time the transportation industry is badly understaffed with younger college graduates.

The colleges are interested and anxious to co-operate, but are helpless to aid in this matter until most transportation companies and departments also are sufficiently interested to assign permanent personnel representatives to visit the institutions from which they expect to recruit graduates. Generally, the better graduates are now selected by visiting personnel men from other industries, and the less desirable men are left for transportation. Recruitment by personnel officers is urgent and the whole program depends upon it.

Recruitment must be followed by satisfactory training programs and adequate personnel supervision over the progress of the young men atfer they are employed, as is the practice in other large industries. Where this is not done, transportation loses many of its better college men and gets only routine service from many of those who remain.

Because of lack in recent years of personnel activity by the transportation industry and the consequent loss of interest among students and faculty, little modern textual or course material is available for much undergraduate work. Correction of this condition requires time, and it should be undertaken as soon as the transportation agencies act as suggested in the foregoing. It will be difficult to get discouraged educators to work on this until transportation agencies demonstrate their interest. Many committee reports, published articles, and individual opinions confirm the foregoing statements. There is little or no adverse opinion expressed. If, however, action is delayed, it is probable that adequate college interest in transportation cannot be revived, since post-war educational plans are being crystallized now, with many new demands crowding out the older and more specialized courses.



On their way to business careers—but few of them will be on the railroads unless the railroads show more interest in college men

The foregoing are the unanimous recommendations of the Committee on Transportation, based upon the observation and experience of its members, most of whom have been connected with transportation and transportation education for a lifetime. Further discussion will be fruitless. Only prompt action can revive the colleges' languishing interest in transportation. This is definitely true for engineering colleges and also appears to be true for colleges of business administration.

In recent years, national transportation and engineering education committees have been concerned with the need of transportation for an adequate share of the better college men. All recognize that transportation must compete actively in this matter with modern manufacturing and distributing industries. While the obvious requirement is for men with the bachelor's degree, already American industry has a sprinkling of Ph.D.s and Sc.D.s among top executives and technologists. They are found increasingly in governmental agencies associated with transportation, and the day may not be far distant when we will

* Abstract of a report of the Committee on Transportation, Civil Engineering Division of the Society for the Promotion of Engineering Education, of which committee Prof. Harry Rubey, Department of Civil Engineering, University of Missouri, is chairman.

follow European precedent still further in this respect.

Despite its great extent and the unexcelled opportunities therein for college men, transportation no longer has the glamour it possessed when railways were almost our only large and active corporations, and when highways were "lifting the country out of the mud." Air transport may be cited as an exception.

It is the considered opinion of the committee that the flow of college graduates and post-graduates into transportation is definitely inadequate, both in quantity and quality; and that both faculty and graduates believe that opportunities in transportation under existing conditions are relatively unfavorable.

Recruitment

To remedy this situation, initiative, demand, and continued supervision must come from the personnel departments of the transportation agencies as follows:

Definitely and permanently assigned personnel representatives must be sent to the colleges at least once each year. The first contacts must be made immediately if the colleges are to include transportation in their post-war programs. A personnel man from each employing company or department must visit each college from which it hopes to recruit graduates, and the same man should keep up this contact year after year.

This procedure has been standard practice in other industries for more than a decade. Specific examples from industry are given under the title Industry Points the Way to Selection of College Trained Men, which appeared in the *Railway Age* of August 21, 1943, pp. 313-318 (from a sub-committee report of A.R.E.A. Committee on Cooperative Relations With Universities).

Writing a letter to the college is not sufficient. The visits of personnel representatives permit conferences and close continuing personal touch with college authorities and students in such a way as to encourage the best of co-operative procedure and personal relations. "The cards will be placed on the table" and constructive steps then taken to remove the bottlenecks. The details will take care of themselves.

Once these contacts have been established and graduates employed, the progress of the men must be directed and encouraged by a personnel representative as well as by an immediate superior; otherwise transportation agencies lose the opportunity to transfer these unusually promising men to suitable responsibilities. Furthermore, young college men become impatient if their experience, salary and promotion are not recognized and do not keep pace with those of their classmates.

These men are highly screened from upper economic levels of our population, and possess those traits of ambition, foresight and self-discipline which urge young men to postpone their entry into industry for several years while they receive expensive education and training. They must not be classified with unselected and untrained young men who are much less promising material, and be allowed to sink or swim among a mass of employees where opportunity for training and promotion is necessarily based on an unpredictable combination of real ability, seniority (where college men have lost several years), family and other connections, personal acceptability to immediate superiors (often prejudiced against college training), and chance.

By the laws of probability the graduate is here so badly handicapped that intelligent and well-advised young men will not enter the game. There are too many promising opportunities where their progress is constantly supervised by personnel officers.

As a current example of the better up-to-date practice, the Navy is now establishing permanent Reserve Officer Training Corps in some 50 universities, where many thousand young men are paid to prepare themselves especially for commissions as ensigns. A group of naval officers has recently completed a tour of the universities and concluded necessary arrangements. A captain and other naval officers will be on duty at each institution.

These naval trainees will receive close personal attention and guidance as they are selected for the program, while they are in college, and throughout their professional careers. The future leaders of the Navy will be recruited almost exclusively from them rather than from uneducated and haphazardly selected men. This type of preferred opportunity will doubtless attract the better young men. The program grows out of the Navy's favorable personnel contacts with the universities.

The performance of college graduates in the armed forces and in war industry shows that they are rugged and able to stand heavy going; nevertheless, they do best under selection and guidance by personnel officers.

The Opportune Time

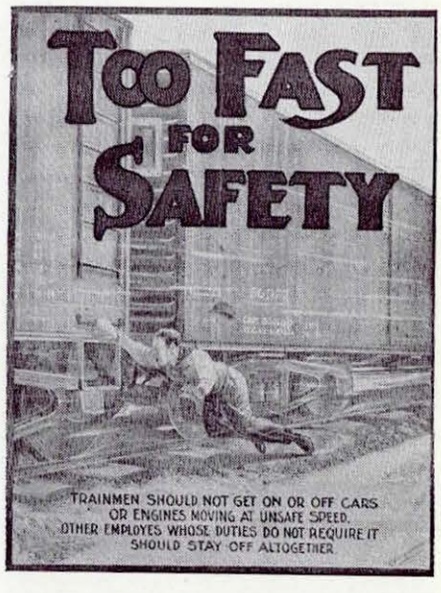
The railways are handling the greatest business in their history, and public opinion could be more favorable than for a generation. Highway departments are assured of great activity after the war. Navigation on inland waterways (either with or without T.V.A., M.V.A., and similar authorities) promises to be active. Ocean navigation on an unprecedented scale seems certain. Air transport will grow faster than all others. The transportation industry cannot afford to enter such an expanding and competitive era without modern personnel policies for securing and holding outstanding men for technology and management.

If and when the transportation agencies establish personnel relations with the colleges as is the usual practice in other industries, the colleges will gladly respond. However, transportation education has reached an all-time low. Neither students nor the younger faculty men are attracted to it under present conditions.

A Twenty Year Gap

Many of the older faculty members who have carried on the work in the past are turning their attention to other fields. If this trend is to be reversed, it must be done immediately. Considerable, perhaps insurmountable, difficulties will confront us if action is delayed, since post-war educational plans are being crystallized now, and many new needs are crowding into educational programs. Many additional corporations which hitherto have not maintained modern personnel relations with engineering colleges are now establishing such contacts.

Due to the low college enrollment during the war, the supply of male graduates will be quite limited for many years; the shortage in engineering alone for the United States being estimated to exceed 40,000. Since most transportation organizations have employed relatively few graduates since 1929, there will, therefore, exist a gap of 20 years in their managerial and technological staffs. This lack will be felt increasingly as the older men retire and as management and technology become more important.


TOO FAST
FOR
SAFETY
TRAINMEN SHOULD NOT GET ON OR OFF CARS OR ENGINES MOVING AT UNSAFE SPEED.
OTHER EMPLOYES WHOSE DUTIES DO NOT REQUIRE IT SHOULD STAY OFF ALTOGETHER

Poster No. 271, April installment of the "All the Year—Every Year Safety Program," now being distributed by the Committee on Education, Safety section, A. A. R.

How Not to Operate a Railroad

Control of Mexico's railways by labor unions makes unfavorable impression on a qualified observer, who reports that "class war" theories subvert necessary discipline, reduce efficiency

By O. M. STEVENS
President and General Manager, American Refrigerator Transit Company; Former Head of U. S. Railway Mission to Mexico

I WISH I could entertain you with a travelogue of Mexico, but for two long years during 1942, 1943 and 1944 I lived through an experience which, so far at least, has rarely come to a citizen of our land. That experience took me into a seething hotbed of socialism and communism. It occurred on the railroad system of Mexico, owned by the government but completely in the hands of the railroad labor unions. That railroad system is nationalized; it is socialized; it is owned by the state; and it is operated "for use and not for profit"; but it is managed and operated by labor unions.

Socialism Replaces Labor

This runs so true to form, so true to the common pattern wherever a state socializes industry. Labor always rushes in to fill the vacuum left by the departure of private ownership and efficient management, but the domination by labor is relatively short, for sooner or later the truly socialistic state takes over labor unions or reduces them to impotency.

And what is the fact in our own country? Well, one would have to be deaf and dumb, indeed, and totally blind not to see the identical pattern taking shape before our eyes. I would not say that all labor in our country aggressively has this objective in view, but I will say that some of our labor is out aggressively, and all labor at least passively and perhaps unconsciously, for socialization.

Labor, needled by communism, just as it is being needled in this country, and in Mexico and all over the world, works might and main for statism, deluding itself into thinking that ownership of industry by government means better wages, better working and social conditions. Labor struggles to destroy private ownership, seeks to infiltrate into management, as it has done so completely on the Mexican railroads, and to some less extent on ours; strives mightily to substitute socialism for capitalism, and, when successful, has its little fling, only to be destroyed ultimately by the monster of its own creation. The fact that Mexico has not destroyed her labor unions is the best evidence that hers is not a socialistic government. The same may be said for our own government, but let labor unions press heedlessly on their mistaken and selfish way, as the C. I. O. is doing here, under the latitude allowed by the Wagner Act and its interpretation in the courts, or as the rail unions are doing in Mexico, and both governments will be compelled to take steps which are possible only in a socialized state. Then we really will have socialism or communism and the end of all freedom, including labor's freedom. Let labor think of the temper Congress is displaying right now, and think also of the rising resentment growing daily among the people.

Found Rampant Communism

The government of Mexico is not socialistic or communistic or anything else but the democracy it professes to be. Neither the government of Mexico nor the government of the United States will ever become totalitarian unless forced into socialism by heedless lack of self-restraint and self-government within labor, and by the neglect, indifference or ignorance of citizens outside the ranks of labor. But while neither government is socialistic or communistic, let us not fool ourselves. There are elements of communism and socialism in both governments and the potency of their poison becomes greater in proportion as these governments become captives of labor. Who will deny that the chains of labor are looped around, if not yet locked upon, both governments? However, there is even a greater danger than the communistic termites which infest and crawl through governments. That greater danger is the rampant communism I found among Mexican railroad employees and in their unions and the same communism, a bit less rampant perhaps, a little more secretive, but just as deadly, in certain factions of labor here.

Among railroad employees and their labor leaders in Mexico there is little or no attempt at secrecy about communistic beliefs. Many of them wear their communism as a badge of honor, openly proclaiming themselves for what they think they are. As a matter of fact, most of these self-styled communists in Mexico, aside from a few foxy leaders, are no more communistic than I am and they don't even know the meaning of the word. Most of the Mexican workmen are honest, patriotic citizens being misled by leaders who play upon the natural yearning in the breast of every man for an easier life with better wages, better working conditions and, above all, higher standards of living for his children than he has for himself.

Prey to Propaganda

Those are very human and natural desires but they have special force and meaning in Mexico, where standards of living and wages for the vast majority always have been low. With soaring inflation, which he cannot understand is due principally to his own low production, the Mexican worker falls an easy prey to the communistic propaganda fed to him constantly by his own union leaders and by foreign agents.

For two years I lived and worked in that atmosphere—surrounded by men who even mouthed the very phraseology of Russia in their talk and in their correspondence. The letters of union leaders, one to the other or to their membership, customarily began with the words "Dear Comrade" and closed with the words "in the struggle of the classes." I looked these foreign ideologies, communism and socialism, squarely in the face and found them just two manifestations of the same thing—just the opposite sides of the same lead nickel. I saw them in all their ugly nakedness, stripped of the beguiling camouflage and the glamour and the sugar-coating in which their misguided advocates dress them for sale to the ignorant or unsuspecting. I saw the stark horror of these twin "isms"—these foreign concepts. At first hand and by daily contact, I saw what they do to the minds of men and

* This article is from an address delivered in Chicago, March 12, before a meeting of the Transportation Engineering section of the Western Association of Engineers and the American Railway Engineering Association. Mr. Stevens was head of the United States Railway Mission to Mexico in 1942-44. This expression is, of course, his own and is not an expression of editorial opinion by this paper. It is published here because the observations on so important a subject of a witness of Mr. Stevens' qualifications and enjoying the official status which he occupied during his sojourn in Mexico merit widespread attention by the kind of audience reached by *Railway Age*. Our editorial comment on this expression appears on another page herein.

to their welfare, their happiness, their hopes. I saw their work in the utter ruin of a potentially great railroad system—a system which in Mexico, a land of little other means of transport, is the very veins and arteries of national life. I saw their paralyzing effect upon industry and upon the whole economy of a great nation.

I saw their demoralizing effect upon the living standards of 22 million people and I came from the experience, after two years, with fear as a hot iron in my soul, realizing as I never did before what these terrors may well do to our own railroads and industries and to our own country, where the same ugly heads rise today on every hand.

There is, indeed, much for all of us to admire in Mexico and there are many lessons we might learn with profit to ourselves from the Mexican people and from the Mexican government. For example, there is much of native courtesy and simple kindness that any Yankee might learn from the humblest Mexican and from their government. To mention only one thing, we might learn the wisdom of their constitution, which prohibits more than one presidential term of six years for any man. But, that lesson we had to learn the hard way. Certainly in no sense am I scornful of Mexico and I speak tonight as a true friend of that country. If I seem critical, I know that my Mexican friends will believe these remarks are meant constructively. It is never good and seldom wise to risk friendship—to risk injury to the sensibilities of friends. Only the most powerful motive can justify that risk. I subscribe completely to the concept that if one cannot say something good and kind, it is better, ordinarily, to remain silent. But when one must choose, or feels deeply that he must choose, between that concept on the one hand and what he conceives to be good for his country on the other, there is but one choice for any loyal citizen to make and I have made it.

Threat to American Railroads

The growth of communistic influence —which for years retarded the development and now has virtually destroyed the usefulness of the government-owned Mexican railways—gravely threatens not only the railroads of the United States, but threatens also our whole national economy, including labor first of all.

Most of the lines of the National Railways of Mexico were built some 60 years ago. For many years after construction, and through the period when narrow-gage lines were being changed to standard gage, and the various lines were being hooked up into something like a unified system, the ownership and management were entirely in American hands. In those days the Mexican railroads compared favorably with United States lines. All official positions, from the top clear on down through the subordinate officers, were held by men from our country. Even the locomotive enginemen and the train conductors were foreigners. Few Mexicans were permitted to fill jobs higher than brakeman or fireman, mechanic or laborer.

The Revolution's Influence

But during the Mexican revolution of 1910-1914 all these foreigners (the Americans) were driven out, or they felt it wise to leave, when revolutionary forces took the railroads. In those revolutionary years the rail lines were heavily damaged in the fighting. The main lines suffered particularly and much of the accessory property, such as shops, enginehouses, stations, etc., was completely destroyed. So when the country became relatively quiet again the Mexican rail lines were in a sorry state, indeed. The American owners and operators never came back, because, immediately following the revolution, the principal lines which now make up the national system were expropriated by the federal government that arose out of the conflict.

These lines were declared the property of the nation, they were to be owned, managed and operated by the federal government and manned only by native Mexicans. Now the former American owners and managers, to their discredit, never had trained any Mexican supervisory personnel above the grade of the lower positions, and the task assumed by the politicians—who naturally knew almost nothing of railroad management and even less of railroad operation—was an impossible one.

So the politicians of Mexico muddled on with the railroads as politicians always do with government-owned facilities and then another strangling force arose. This was the force of organized labor. It could have been such a helpful force and perhaps it was helpful in the beginning, but we must remember that Mexican labor unions, following the revolution, sprang up from an oppressed people who long had lived under the iron rule of a dictator.

Understandably, their new freedom and power, as expressed in their labor organizations, after long suppression, went to extremes. The pendulum, released, always swings far past the middle and it did in Mexico, but it would have settled back to a normal swing, after the first flush of exuberance, had not outside and foreign forces come to bear, and to work through the unions. Communism never loses a chance to worm its way into a new organization and it certainly missed no bets in Mexican labor unions.

All industrial unions became strong and even headstrong after the revolution, but the railroad unions, in particular, became powerful, indeed—so powerful and so exceedingly influential with government that, finally when a president with "New Deal" ideas came to power, the rail unions took over the railroads completely. This president literally gave the railroads to the unions—lock, stock and barrel—for management and operation.

That well-meaning but misguided president saw things through the same pink-tinted glasses which later became so fashionable in Washington—and still are for that matter. Beyond question he was honest, but just as surely he was mistaken, in his impractical idealistic belief that the railroad unions would unselfishly manage and operate the Mexican rail system for the good of the nation, instead of for the good of the unions.

We, too, have had and still have such impractical, unrealistic, do-gooders in government. Some of them, all too many in Washington, would take over the railroads and other large industries of our country and would hand them over to labor just as Mexico did and with the same disastrous results—disastrous, that is, for labor unions, just as it would be for all of us.

Physical Conditions Bad

The physical conditions found by the engineers of the United States mission when they first examined those labor-managed lines were bad beyond all comprehension, measured by United States railroad standards. Under the direction of the mission, progress was made in strengthening and in rehabilitation, but that progress was temporary and is already slowing down as the mission withdraws, and it will stop entirely when the railroads are left in the hands of labor management.

On those railroads every man and officer from the section laborer, through all the supervisory and official personnel clear to the top, belongs to the union. Men, foremen and officers alike are all brothers in the same lodge. Nothing more is needed to show the utter impossibility of having a functioning, efficient, disciplined organization.

No officer has any authority whatever. If a superintendent should so far forget his obligations as to remonstrate mildly with a dispatcher about a collision caused by a lap order, that superintendent would be haled before the local union and quickly set straight. Let him offend a second time and he would be out of the union and out on his ear. Under these circumstances you can imagine how much authority a foreman or a yardmaster, for example, has over the men he supervises.

The former Mexican president thought the unions would operate the nation's railroads for the nation, but the unions didn't quite see eye to eye with him. Their idea was to operate the railroads—not for the nation but for the unions. To this end no man, short of death, ever left the railroad payroll once he climbed aboard, and this has gone on until now there are some 56,000 employees on that system of 8,000 miles with a traffic density less than one-fifth that of any comparable United States railroad. In my judgment, on the payrolls of this government-owned property, there are not less than 30,000 too many employees.

The whole theory of the Mexican railroad unions is to create just as many jobs as possible, to get the maximum possible number of people on the payrolls, in total and complete disregard for the need. But let's be fair and recognize that many of our own labor unions work on exactly the same principle. The only difference is that in our country management still has some little remaining control, although not much, and what does remain is being whittled away, whereas in Mexico the whittling is finished.

Naturally the excessive employees on the Mexican railroads and the resulting low production per man make for low rates of pay, and wages are low, terribly low, measured in terms of what money will buy in the gross inflation which low production has brought on Mexico. Wage increases were frequently demanded and about as frequently given by a government, helpless before the threats of labor, and then usually a corresponding freight rate increase completes the inflationary spiral. Having become adjusted somewhat in Mexico to the dizzy steeplechase between wages and prices, I can view with a certain amount of resignation the antics of Professor Bowles and the "fact-finding" boards, here at home.

Service at Minimum

To sketch something of what happens to industry and to the normal industrial life of a nation, where railroads are socialized and where they are run by and for labor unions and not for the nation, I am quoting a recent article written by an important and able Mexican business man.

"Vera Cruz is blocked with freight, much of it standing four months or more waiting to be placed in the dock warehouses. Tampico suffers equally with long delayed freight left for months in the weather on open docks because cars are not furnished to move it. Monterrey yards are choked with 1,800 loaded cars and the industries of that city are paralyzed. El Monte cannot sell its sugar and 7,000 tons await movement. Mexico City's industries are slowed to a standstill. The great glass factory is closed entirely, with its workers dismissed, because it cannot ship its finished products or get raw material which has been in transit the past four months. Buses and trucks and private automobiles are at a standstill over all the republic because gasoline and oil do not move from Tampico. Farmers in the great Laguna district cannot plant their cotton because oil has not come for their tractors.

"Even corn and wheat to feed our people is delayed in transit three months or more and bread lines form everywhere in the large cities. Food riots are common because people hunger for the food delayed for months on the railroads.

"There is no longer, if there ever was, a single good excuse to maintain the disorder and the inefficiency caused by labor on our railroads. These lines are not overburdened; their load is very light. They have no problems whatever except those created by the railroad labor unions who hold all of Mexico at their mercy.

"We need no more cars and we have engines to spare. Our tracks, our bridges and our terminals are adequate, thanks to the help of the U. S. mission. All we need is the will of labor to go to work for the nation, subjecting itself to the discipline of wise, experienced management, and self-discipline so necessary to the success of any industrial undertaking, so necessary to the prosperity of labor itself. This discipline and this will to work we would have among our workmen, were it not for the communistic influence exercised over them by their union leaders."

Industry Injured

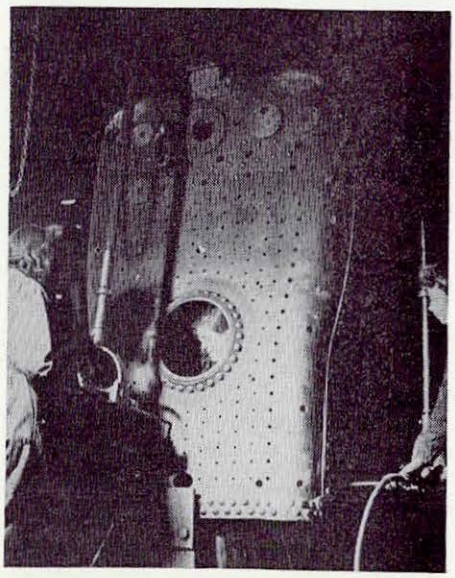
The plain fact is that all modern industry in Mexico is dying for lack of transportation. Existing industry is dying and new industries haven't a chance, notwithstanding all the brave talk of industrial expansion. Mexico's national lines are backward, it is true, for they are 40 years behind modern railroad standards. Time and progress stood still under the dead hand of government ownership and labor management. They need expansion to open new territory. Their operation is wasteful and inefficient beyond description. They need rehabilitation and modernization, but, just as they are, good management and willing labor would make them adequately serve every need Mexico's existing industry has now for transportation, and they would be adequate even to an expanding industry, while undergoing improvement and rehabilitation.

Good, able management, composed of honest men, trained and experienced in railroad work, men loyal to their country and who have a decent regard for the just rights and problems of labor, could change the national lines of Mexico in a few years, from the worst railroad system on this continent to a place among the best.

Even the problem of the heavy costs of modernization and rehabilitation would yield readily to such a management, for those costs could be saved in total from the incredible wastes which, today, under government ownership and labor management, drain away in waste the very life blood of the railroads. Those wastes amount to $10,000,000 per year or more.

For my Mexican friends and acquaintances in Mexican labor unions, I have the utmost sympathy and kindly feeling; that is, for those who are patriotic citizens of Mexico and loyal to that country, which means the great majority of them. They are fine workmen, although lacking in knowledge of modern methods through no fault of their own.

Most of them are troubled greatly over the backwardness and inefficiency of their national lines and greatly desire better rail service for their country. With all my heart I wish they and their countrymen could see how very simple and how easy it would be for Mexico to have strong and modern railroads. Nothing would raise the standard of living higher for all the nation, or more quickly, than adequate, efficient and low-cost transportation. It may be some day my Mexican railroad friends will see this and, when they do, their first step will be to denounce and renounce forever the communistic union leadership which keeps them blind.

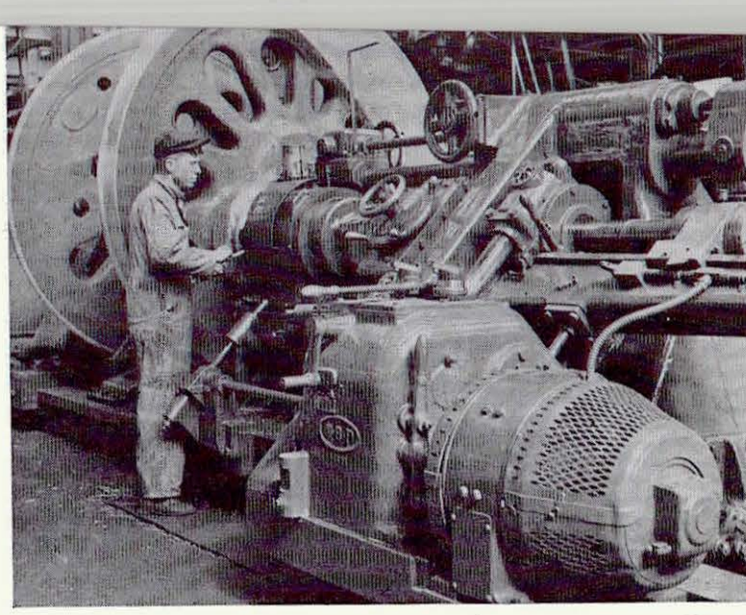


British Combine Photo

New British Locomotives from Old—The girls shown here are drilling and tapping a firebox for riveting—one of the steps in the G. W. R.'s program of building its new "1000 Class" locomotives from the graveyard of its old locomotives

Modern Locomotives Need Modern Tools

Specific examples of reduced costs effected by adequate shop equipment given in abstracts of two papers presented at November meeting of Pacific Railway Club



I

By J. R. PHELPS

General Machine Shop Foreman, Atchison, Topeka & Santa Fe, San Bernardino, Cal.

WEBSTER'S dictionary gives the following definition for a machine tool: "An adjustable machine with an automatic feed for shaping metals by cutting." To men like us, this involves not only the machine itself but also the cutting tool and the driving arrangement for the machine.

The importance of machine tools is seldom if ever questioned. Our problem is to get the most possible value out of them. A tool or machine is not necessarily worth what the railway company pays for it. It is worth only what we can get out of it.

Railroad men are constantly confronted with new problems, each problem requiring a new method of attack. We should approach these problems with an open mind and remember that often the best indication of a man's age is the pain he registers when introduced to a new idea. If we do this, many a locomotive will get to its train a little quicker because of a modern tool or some simple labor-saving device. A tool is a time- and labor-saving device and should be used to the fullest possible extent to accomplish that purpose.

Changes in design in the steam locomotive and the arrival of the Diesel locomotive have changed the picture greatly in the average railway shop. Modern tools are as necessary in the well-organized railway shop as in any other industry. If it is true that no railway is better than its motive power, it is also true that this same motive power will be maintained in line with the tools furnished to do that job.

Many old timers, and not so old at that, can attest to the fact that a few years back accurate measuring tools, power wrenches, high-speed tool steel and carbide-tip tools were hardly known in railway shops. One now sees these shops being equipped with some, but not enough, modern machines.

Few railway shops were originally built and tooled to take care of the type of work they are now doing. While most machines built in the last 20 years are motor driven, it is surprising how many have been in use more than 20 years, 30 years, 40 years and sometimes more than 50 years.

One of the best ways to get the most out of these old belt-driven, step-cone machines is by the application of variable-speed gear-shift motor drives. At the Santa Fe shops in San Bernardino, in the machine shop alone, we have 171 power-driven machines, each with individual motor drive. Fifty-six of these machines are old enough that they had the old line shaft and were formerly belt-driven. In the last five years, we have changed all of these machines over to motor drive.

Carbide-Tip Tools

The use of carbide-tip tools and milling cutters for machining steel, cast iron and brass should be a *must* in every railway machine shop. The efficient use of carbide-tip tools goes hand in hand with individual motor drives of ample horsepower and V-belts. In this shop, we have used the same carbide-tip tool to face the brass lateral on as many as 97 driving boxes without regrinding the tool. Carbide-tip tools in a small brass bushing lathe have been operated continuously for 50 hours without regrinding. Just compare this to the old system of a machinist on a brass lathe carrying an armful of the old-fashioned forged tools to a grinding wheel several times a day.

We have been successful in the use of carbide-tip tools in turning steel wherever the type of work and the size of the machine will permit a real fast cutting speed. So far we have not been successful in the use of carbide-tip tools for the turning and boring of driving tires. The floor to floor time on any job is what counts.

The numbering of all machines in any shop, large or small, whether it be a machine shop, boiler shop or planing mill, makes definite savings in many directions. These numbers should be at least 6 in. high, should be painted white on a black background, and should extend on a rod two or three feet above the machine, so that they can be seen from all directions. The numbering of machines simplifies routing of material.

The sending of jobs to different locations or the sending of an electrician or repairman to a machine is simplified. This numbering of machines makes a machine filing system possible, whereby each machine in the shop is carried under a separate file, the same number as the machine itself. This has nothing to do with the valuation numbers or factory numbers of the machines. It is advisable to start with No. 1 at one end of the shop and finish up at the other end.

The best machine tool in the world loses part of its value if the material is not moved up to and away from it by a good shop transportation system. One important, but often neglected, problem is the transportation and moving of material in the shops. We railroad men seem to have done a fine job furnishing transportation for the public, but some of us still have a whale of a job to get material efficiently moved in our own shops.

II

By E. N. STATLEY

Apprentice Instructor, Southern Pacific, Sacramento, Cal.

When you develop speed in any kind of mechanism it is necessary to have close working tolerances. This is essen-

tial to cut down vibration and give longer life to the mechanism itself. Until a few years ago, speed on railroads was considerably lower than it is at the present time, but today's speed has come about through the knowledge we have gained of metals that have been developed and the use that can be made of them; but we found that to take full advantage of these metals means we have to have new machines with which to work the metals.

Machinery Was Inadequate

We found that needed parts were not so easy to machine as we were apt to believe. The general machinery used in railroad shops was of a standard design, such as lathes, planers, milling machines, drill presses, etc., but it now became necessary to work to close limits and still produce the different parts in faster time. We found out that the machinery we had was not sufficient for our needs. We could produce these parts with the machinery we had, but the man-hours consumed were too great and required much greater skill . . .

Machine manufacturers became interested in machines for railroads. Machines were built from suggestions that came from the man on the job. Cooperation between the man who had a problem and the manufacturer of machine tools has solved for us many problems, and has enabled us to produce a high grade of railroad material.

It would have been practically impossible to machine some parts of a locomotive to the degree of accuracy that is now required with the standard type of machinery that once was to be found in the average railroad repair shop. I cannot speak too highly of the sales and service departments of the present-day machine tool manufacturers. They have been very helpful to us in solving some of the problems that we have had and their courteous and efficient service has been appreciated.

Recently an Ingersoll slab milling machine was installed at Sacramento shops for the purpose of machining locomotive side and main rods. This machine has displaced an older machine that had been in service a great number of years. This new machine has enabled us to step up production of rods; for example, 40 hr. were required to machine a pair of main rods on our old slab mill. We can now machine a pair of main rods in 34 hr. This modern machine not only increases production, but also is more convenient for the operator to handle, thereby reducing the effort that was required to handle the old machine.

An Ingersoll driving-box milling machine has proved highly satisfactory in the machining of driving boxes. An example of this is the time required to machine two locomotive driving boxes. This has been a standard planer job for years and required 10 hr. Two identical boxes were machined on this milling machine in 4½ hr., an increase of over 100 per cent. We have eliminated one planer working 20 hr. a day. This work is now taken care of by the milling machine in 10 hr. Through contact with the service men representing this machine tool company, and suggestions given by us, an improved type of machine will be produced which will give more production than the present one.

With the Bullard vertical turret lathe recently purchased by us we have been enabled to cut the cost of the manufacture of rod bushings. Gun iron intermediate side rods bushings previously machined on a lathe at a cost of $5.75 each can now be made for $2.60, or at least 50 per cent cheaper. Brass main-rod bushings show a saving of 50 per cent. We have eliminated two men whom we are able to use on other work. The simplicity of operation, combined with the ease of manipulation, makes this machine ideal for rod bushings.

A 4L Gisholt turret lathe has proved itself to be one of the best new machines recently received. As an illustration, previous to receiving this machine we were machining drawbar pins at a cost of $3.40 each. They can now be manufactured for $1.70, a saving of 50 per cent. In addition to the reduced cost of machining these pins, a considerable amount of labor and money is saved by the use of scrap axles. Previously these pins were forged by the piece in the blacksmith shop and machined on an engine lathe. The increased production on this job is typical of every job handled by this machine.

A brake-shoe clip machine is a new and original design for forming brake-shoe clips automatically. Previous to using this machine, it required three operations in which each individual strip was handled by hand. The production has been increased 600 per cent, with less effort by the operator and at the same time reducing potential accidents. An ingenious device designed as an attachment to a Morton drawcut shaper to cut the smokebox radius on locomotive cylinders originated at Sacramento. This device alone cuts the time considerably as compared with the previous hand method.

One of the most interesting and efficient machines developed during the last few years is the Magnaflux. It is an electrical machine capable of detecting a flaw in steel. There are many thousands of parts tested for defects at the Sacramento shops each month. Locomotive parts that are magnafluxed include side and main rods, axles, tires, crank pins, piston rods, motion work, binders and various other parts. In the car department, all passenger and tender axles, equalizers, swing hangers, brake beams, etc., are given the Magnaflux test while in for repairs.

We need modern machinery to produce the locomotive of today. Tomorrow's locomotives will require more modern machinery. If we are to keep up with other industries in efficiency we must have modern tools.

Poor Cars for Auto Loading Risk Loss of Business

By E. T. PATE
Car Inspector, St. Louis-San Francisco

THE use, abuse and servicing of the Evans automobile-loading device merits consideration, particularly since the Association of American Railroads and individual roads throughout the country are all campaigning for more and better serviceable transportation equipment.

Common in use today are the Type D, E, F and T loaders, the racks changing in length, width, etc., with automobile design. To keep pace with all this, many railroad automobile-box cars have had side door width changes, roofs raised, sills reinforced, end doors applied, roofs remodeled to permit of greater heights, side door design changed to permit of better operation, and many other changes in car design, etc.

The servicing of the automobile loaders is not an easy job nor one that can be taken lightly. There are so many related and inter-dependent angles to it that it takes planned and the active, energetic and whole-hearted co-operation and co-ordination of both the transportation and mechanical departments of each railroad. At the present time, after

This article is from a paper presented at the February 19 meeting of the Car Department Association of St. Louis.

having just emerged from war-boom traffic during which time the railroad automobile-box car with its rack secured to the roof carried all kinds of commodities, both the car and racks took a terrific pounding and were subjected to abuses that ordinarily they would not have encountered had they remained in auto-transport service. The floors are in bad shape—broken, and scab-patched doors bent; and the racks have had little attention in the matter of service and inspection in the last four or five years. It is a regrettable fact that many of these cars are today finding their way into the automobile plants for loading, having never been reconditioned.

To provide adequate and proper service, it must be definitely emphasized that these cars be serviced before they are furnished, in order to avoid the hazard of personal injury to employees of the automobile industry, eliminate wasteful cross-haul—which results when cars are rejected—loss of car-days, loss of prestige, the good will of the shipper, and loss of traffic.

I have listed some sixteen roads that furnish empty rack cars in St. Louis for loading at the local Chevrolet plant. These data include the number of cars furnished, number of cars rejected, number loaded but not considered A-1.

To point out the difference in performance of various railroads, for example, Road *C* furnished 70 cars in September; had 13 rejected as unfit to load; and had two cars loaded but not entirely O. K. This same road, in October, furnished 76 cars; had 27 rejected, and 12 were loaded but faulty. In November, of 182 cars furnished, 31 were rejected and 36 had other defects. For the three months, a total of 328 cars was furnished by this Road *C*, 71 being rejected and 50 faulty. Another road listed as Road *L* furnished 39 cars in September, and had 18 rejected—nearly 50 per cent—and had 8 others defective.

Against these poor records, let's look at a road where apparently servicing is actually being done. Road *P*, for example, in September, furnished 147 cars; had only 4 rejected; and only 1 found faulty. In October, out of 46 cars, not a single car was rejected, and only 3 had minor defects. In November, out of 30 cars furnished, one was rejected and one found faulty. It is obivous that Road *P* is contributing much more to the solution of this problem than Roads *C* and *L*; and this is true of other roads.

The servicing of these racks must, to have success, be done by precision-trained employees, or crews who from daily contact and alert supervision are able and qualified to detect defective parts and repair them. Cars must be gone over thoroughly, racks lowered to the floor and inspected from front to rear. Cables must be inspected from end to end for broken or defective strands; hoist housings inspected and oiled; chain turnbuckles examined for worn and defective threads; doors made operative; door tracks and rollers greased so that they can be operated by one man; and many other parts inspected.

Now let's take a look at the automotive industry, and how this all affects their end of it, and what they are up against. Let's assume production is 1,000 cars a day (this figure was true in pre-war days and probably will be higher in the near future). At the Chevrolet plant, here, a loading dock will accommodate fourteen 40-ft. cars, or seven 50-ft. and five 40-ft. There are on hand 20 to 30 loading crews—three men to a crew—and the loading of a car is completed (where no trouble is experienced) in 15 to 17 minutes. One car to be rejected, or one car that has to be worked on, because of our failure to condition it properly, throws this entire block of 14 cars out of order; with resultant delays of not one man, but 60 or more, and seriously hampers and affects the day's output. Again, when these 14 cars are set, one man is assigned to open the doors, and get ready for loading. When he comes across a door he can't open, he has to stop and get help—and the loading is again interrupted. There have been cases where, in a block of 14 cars, 5 to 7 of them had to be set out on account of being unfit to load; and it gets so bad at times, when a particularly defective batch of cars is furnished, that the loading of automobile-box cars comes to a standstill for long periods. It is no wonder that we are being urged to get into this situation and remedy it. We have nothing but service to sell; and here certainly is a lot of desirable tonnage. We are—instead of making it secure—probably driving some of it away.

* * *

Motor Alternator for Train Communication

Motor-alternators for supplying power to train communication sets are now being produced by the Safety Car Heating & Lighting Co., Inc., New Haven, Conn. These small units are similar to the larger units which this company has been supplying for several years for conversion of direct current to alternating current for fluorescent lighting on railway passenger cars.

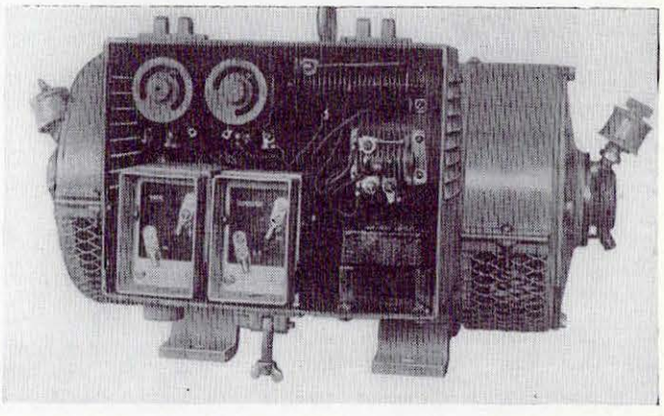
For communication purposes, two major refinements have been added: the use of filters both on the d. c. and a. c. sides of the machine or on the a. c. only as required, and the excitation of the alternator from the a. c. line by means of a selenium rectifier. These features are combined with those of passenger car motor-alternators to produce a rugged unit having low radio noise level and stable frequency and voltage regulation required by railroad train communication.

Available in various sizes, the units for communication purposes are furnished for all voltages used on railway equipment and in capacities to fit the various requirements. They have been tested and approved by the Navy, ship-to-shore communication companies, and manufacturers of railroad communication equipment.

The units are self-contained and have inherent frequency and voltage regulation. No mechanical speed governor, subject to burning and radio noise, is used.

The motor and generator are combined in a single frame. A terminal box of liberal proportions provides access to both motor and generator terminals and houses the filter units and control equipment. There are also two adjustable resistors in the terminal box. One is in series with the motor shunt field, and permits accurate initial adjustment to the desired 60-cycle value. The second resistor is in the alternator field and provides for increase or decrease in a. c. voltage to suit any operating condition desired.

Both motor and generator armatures are mounted on the same shaft, which is carried on ball bearings of liberal dimensions. Collector rings are made from forgings of bronze alloy.



The motor-alternator with the terminal box open showing the filter units, variable resistors, rectifiers and transformer

Introducing Stainless W—a New Product

Composition, heat treatment, microstructure, physical and mechanical properties of a precipitation hardening steel of the 18 per cent chromium plus 8 per cent nickel type

By RAYMOND SMITH, E. H. WYCHE and W. W. GORR*
Carnegie-Illinois Steel Corporation

(The following article is a condensation of a paper presented before a meeting of the American Institute of Mining and Metallurgical Engineers, at Chicago, Ill., on February 28, 1946.—Editor.)

ALTHOUGH the combination of high strength and corrosion resistance of cold worked 18-8 steel has been advantageously utilized for some time, particularly in aircraft and rail cars, there are certain limitations on the use of such materials because the high strengths can be obtained only by cold working, thus limiting the available products to sheets, strip, wire and tubes. This paper is an account of the development by Carnegie-Illinois Steel Corporation, United States Steel Corporation Subsidiary, of Stainless W**, a precipitation hardening 18-8 stainless steel which overcomes the limitations normally encountered with stainless steel.

In Stainless W there is a change of phase involved in heating or cooling. Austenite is the stable phase at elevated temperatures, while ferrite is the stable phase at atmospheric temperature. The reason for precipitation hardening in this material is that the hardening constituents are soluble in austenite and relatively insoluble in ferrite. Precipitation hardening is brought about by reheating the supersaturated ferrite to a moderately elevated temperature, below that of transformation from ferrite to austenite. (Not all of the austenite may become transformed on cooling from the solution annealing temperature; indeed some may even be purposely prevented from transformation prior to aging.) The simplest proof that the precipitation occurs in ferrite rather than in austenite is that the degree of precipitation hardening which can occur on aging is approximately proportional to the attraction of a hand magnet prior to aging. More positive proof is provided by the X-ray diffraction data which show the increase in hardening is proportional to the amount of the body-centered cubic lattice structure present. Additional evidence is provided by the fact that the slope of the dilatometric heating curve up to and beyond the aging range is that of a ferritic steel, while above the transformation point, the slope is that of an austenitic steel. Also, the density, which is unaffected by aging, is 7.65 grams per c.c., approximately that of ferritic stainless alloys (7.56 to 7.65 grams per c.c.).

Identification of the precipitate has not, to date, been possible because of its finely dispersed state. It is faintly discernible under the miscroscope but has not been agglomerated sufficiently by overaging to be analyzed chemically or identified by X-ray diffraction technique. The electron microscope reveals little more than the ordinary microscope.

Direct evidence of the precipitation hardening is shown by certain changes in physical properties; a decrease of about 15 per cent in electrical resistivity and an increase of about 10 per cent in the thermal conductivity result from aging. Changes of this nature are indicative of a precipitation from supersaturated solid solution.

Effect of Various Elements

The composition of Stainless W must be so balanced, chemically, that the austenite will transform to ferrite on cooling. This transformation, which is essential to precipitation hardening, usually begins at approximately 250 deg. F. and is practically complete in from two to four hours after the material has air cooled to room temperature. A workable composition range has been developed and a typical analysis follows:

	Per Cent
Carbon	0.07
Manganese	0.50
Phosphorus	0.010
Sulphur	0.010
Silicon	0.50
Nickel	7.00
Chromium	17.00
Titanium	0.70
Aluminum	0.20
Iron	Balance

The most important element is titanium, which serves the dual purpose of being the primary precipitation hardening element and a strong ferrite former. With all other elements properly balanced, the optimum percentage of titanium has been found to be in the range of 0.40 per cent to 1.00 per cent. In melting the material, aluminum is added to the bath primarily as a deoxidizer. The excess that remains in solid solution serves to augment the titanium in the precipitation hardening role. Carbon does not contribute directly to the precipitation hardening reaction, as do the other preceding elements, but it serves to control the amount of soluble titanium that will be available for the reaction. Nitrogen behaves in much the same manner as carbon because it also combines with, and thus immobilizes, the titanium. It also stabilizes the austenite and therefore should be controlled and held as low as possible (to residual amounts).

The remaining alloying elements, nickel, manganese, chromium and silicon serve to control the austenite-to-ferrite balance; nickel and manganese are austenite formers while chromium and silicon are ferrite formers. The authors believe that these elements, with the possible exception of nickel, do not enter into the precipitation hardening reactions. Columbium has been successfully substituted for titanium to produce precipitation hardening.

Stainless W, like other precipitation hardening materials, is heat treated in two steps, solution annealing and aging or precipitation hardening. Solution annealing involves heating to put the precipitation hardening constituents into solid solution in austenite, which upon cooling to room temperature transforms into ferrite, which is then supersaturated with the precipitation hardening constituent. Aging or precipitation hardening involves reheating, upon completion of austenite transformation, to a temperature at which precipitation hardening constituents will precipitate out of the supersaturated ferrite and impart the desired change of properties.

Solution Annealing

The solution annealing temperature range for Stainless W begins at about 1,200 deg. F., which is 100 deg. F. to

* Now associated with Titanium Alloy Manufacturing Co.
** Covered by U. S. Patents 2,381,416, 2,374,388 and others pending.

Table A—Typical Ranges of Tensile and Hardness Properties of Stainless W as Solution Annealed and as Aged at the Temperature Indicated

Item No.	Treatment	Yield strength 0.2 per cent offset, 1,000 lb. per sq. in.	Tensile strength, 1,000 lb. per sq. in.	Elongation in 2 in., per cent min. for thickness shown: Sheets and strips: .03 in. and less	Sheets and strips: over .03 in. to .06 in.	Sheets and strips: over .06 in.	Plates and bars: ¼ in. and less	Plates and bars: over ¼ in.	Rockwell hardness "C" scale
1.	Solution annealed at 1,850 to 1,950 deg. F., a.c.	75-115	120-150	3	4	5	8	10	22-28
2.	No. 1 plus aged at 950 deg. F., ½ hr., a.c.	180-210	195-225	3	4	5	8	10	39-47
3.	No. 1 plus aged at 1000 deg. F., ½ hr., a.c.	170-210	190-220	3	4	5	8	10	38-46
4.	No. 1 plus aged at 1050 deg. F., ½ hr., a.c.	150-185	170-210	4	5	7	8	10	35-43
5.	No. 1 plus solution anneal at 1,300 deg. F., a.c.	70-110	120-150	5	6	7	10	12	23-29
6.	No. 5 plus aged at 950 deg. F., ½ hr., a.c.	135-175	155-185	5	6	7	10	12	35-41
7.	No. 5 plus aged at 1,000 deg. F., ½ hr., a.c.	125-165	147-175	5	6	7	10	12	34-40
8.	No. 5 plus aged at 1050 deg. F., ½ hr., a.c.	110-145	135-170	5	6	8	10	12	31-37

200 deg. F. above the temperature at which the material begins to transform to austenite, and extends to approximately 2,000 deg. F. With increasing solution annealing temperatures, the hardness and yield strength of the unaged material increase slightly and pass over a peak between 1,700 deg. F. and 2,000 deg. F., while the corresponding tensile strength simultaneously reaches a minimum value at about 1,600 deg. F. and then increases slightly with increasing temperature. Usually the minimum holding time at temperature is short, and on thin sections five minutes at the higher annealing temperatures (1,850-1,950 deg. F.) has been found satisfactory, while slightly longer times are recommended for heavier sections where it is more difficult to determine when the material has reached temperature.

On cooling, the rate of transformation of austenite to ferrite is inherently sluggish, and therefore precautions must be taken to be certain that transformation is essentially complete prior to aging: this may be ascertained by a series of hardness readings taken over a period of time. Two to four hours at room temperature following the 1,700-2,000 deg. F. solution anneal is usually considered satisfactory, but longer times are necessary following the lower solution annealing temperatures.

Precipitation Hardening

Precipitation hardening takes place over the temperature range of 500 deg. F. to approximately 1,050 deg. F. At the lower temperatures the aging reaction is slow and resultant material lacks ductility. Of the three recommended aging temperatures, 950 deg. F. gives the maximum tensile and yield strengths, but the lowest impact strength and ductility, while 1,000 deg. F. gives a slightly lower tensile and yield strength with an improved impact strength and ductility. Aging at 1,050 deg. F. results in the formation of some austenite which improves the ductility and impact strength, but at some sacrifice of tensile and yield strength. The heating rate to the aging temperature does not have an appreciable effect upon the resultant mechanical properties, but the cooling rate from the aging temperature has a very pronounced effect upon the impact strength, which is markedly improved by rapid cooling.

One of the most interesting characteristics of Stainless W is the extreme uniformity of hardness, in both the unaged and aged conditions, obtainable over the cross section of bars of various diameters.

Microstructure

The microstructure of Stainless W depends primarily upon whether the material is solution annealed in the higher temperature range, 1,600-2,000 deg. F., or in the lower range, 1,200-1,600 deg. F., and secondarily, upon the aging temperature. Following a solution anneal at the higher temperatures and cooling to room temperature to permit transformation to take place, the microstructure is composed of four phases: alpha ferrite, delta ferrite, austenite and carbides. Following a solution anneal at the lower temperatures, 1,200-1,600 deg. F., and subsequent transformation at room temperature, the alpha phase takes on a lamellar appearance, the amount of which depends upon the solution annealing temperature, the amount decreasing with the increase in temperature.

Upon aging Stainless W that has been solution annealed at 1,600-2,000 deg. F., the first visible change in the microstructure is a darkening of the alpha phase, next a darkening of the delta phase. This darkening is attributed to the submicroscopic hardening constituents, which first begin to precipitate when the temperature reaches approximately 500-600 deg. F.

Physical Properties

Certain of the physical constants, which are more directly dependent upon metallographic structure than upon chemical composition, approach those of ferritic 17 Cr and ferritic 18-8. Examples are: Specific gravity, coefficient of thermal expansion magnetic permeability and electrical resistivity. The difference in electrical resistance and thermal conductivity between the annealed and aged conditions of Stainless W is believed to indicate precipitation. The constant modulus of elasticity of Stainless W as compared with the decreasing modulus of cold worked 18-8, is significant.

Mechanical Properties

The "soft" mechanical properties which make the conventional annealed 18-8 so easily adaptable to deep drawing, forming the spinning operations, are the characteristic properties of austenite. The high strength properties of cold-rolled 18-8, which make this type of stainless steel a widely used structural material in the aircraft and transportation industries, are largely those of austenite strained by cold work and in certain stage of transformation to ferrite (martensite). By balancing the ratio of austenite-formers to ferrite-formers, the austenite of conventional 18-8 can be made relatively stable, with a low rate of work hardening for deep drawing applications, or relatively unstable, with a high rate of work hardening wherein high strength can be obtained with a minimum of cold work and a minimum sacrifice of ductility resulting from cold work. The basic composition of Stainless W is so balanced as to insure without the necessity of cold working, the approximate completion of the austenite-

Table B—Results of Stress-Rupture Tests at 1,000 deg. and 1,200 deg. F.

	Stress, 1,000 lb. per sq. in.	Time for rupture: Hours	Time for rupture: Minutes	Extension, per cent	Reduction of area, per cent
1,000 deg. F.	70	..	27.5	30.2	68.0
	40	32	17	20.5	51.2
	33	83	9	14.9	48.0
	30	129	30	14.8	45.9
1,200 deg. F.	30	..	51	61.2	86.3
	20	8	0	43.8	81.0
	13	68	33	74.8	75.3
	11	207	20	64.0	71.4

ferrite (martensite) transformation, and the subsequent process of precipitation hardening.

Stainless W is not intended for those applications where the soft, ductile austenitic 18-8 types are so well suited, but was developed to make the high strength properties of cold worked 18-8 available in all wrought and cast forms, irrespective of size and shape.

In the aged condition, as shown by Table A, the properties of Stainless W can be selected to match those of 18-8 in the ½, ¾ and full hard tempers, on the basis of either yield or tensile strengths, with the exception that lower elongations prevail for Stainless W in thinner gages. One of the most interesting characteristics of Stainless W is its uniformity of elastic values in tension and compression both transversely and longitudinally in the direction of rolling.

The Izod impact strength of Stainless W in the unaged condition is approximately 40-60 ft. lb., regardless of the solution annealing temperature. Upon aging, however, the solution anneal prior to aging and the cooling rate from the aging temperature will have a bearing upon the resultant impact strength with the faster cooling rates favoring better impact properties.

The endurance ratio for the unnotched specimens is approximately 0.46 based on a tensile strength of 195,000 lb. per sq. in., and approximately 0.20 for the notched condition. Results of other tests indicate the unnotched value to be, conservatively, about 96,000 lb. per sq. in. for aged material.

At temperatures above 800 deg. F. the strength of Stainless W is about the same as that of annealed 18-8. However, at moderate temperatures, the strength imparted to Stainless W by the precipitation hardening process is maintained and may be utilized. Short-time tensile tests made on Stainless W which was solution annealed at 1,650 deg. F. for 40 minutes, then machined and aged for one hour at 1,000 deg. F., followed by air cooling are shown in Table B.

Corrosion Resistance

Standard embrittlement tests show that Stainless W is not susceptible to intergranular corrosion. Likewise, the metal resists the salt-spray test about as well as standard 18-8. When immersed in sea water, no appreciable difference in corrosive attack was observable between the annealed 18-8 and 18-8 Ti controls and the Stainless W in either the solution annealed or aged conditions. After three and a half years of exposure, it appears that Stainless W has approximately the same resistance to atmospheric corrosion as 18-8. A limited amount of preliminary data from service and simulated service tests on Stainless W valve parts in hydrogen-sulphide gas, sulphur-dioxide gas, and hot milk, indicate corrosion resistance equivalent to the 18-8 types of stainless steels in many media.

Weldability

The spot welding characteristics of Stainless W are approximately those of 18-8 which are excellent.

Since the properties of Stainless W are a function of the chemical composition and heat treatment, the properties of welded joints will also depend upon these variables. The problem of depositing weld metal of chemical composition similar to that of the parent metal, particularly with respect to titanium, was solved by the development of a suitable flux coating for Stainless W core wire. The special electrodes were subjected to a number of welding tests and show that:

1. The "as-welded" strength of joints in solution-annealed sheets and plates is about the same as that of the un-welded material, i.e. 100 per cent efficiency.

2. The "as-welded" strength of the joints in aged sheets and plates is about 70 to 80 per cent of that of the unwelded material.

3. The strength of joints given post heat treatment of aging only, was erratic, particularly on specimens on which the weld beads were not ground flush, and varied from the strength value of solution-annealed material to that of fully aged material.

4. Solution annealing and aging after welding produced strengths across the welded joints exceeding 90 per cent of the strength of fully aged parent metal. The hardness values show that the heat resulting from the deposition of the second bead has an effect on the aging response of the first bead.

In general, the results are favorable and show that Stainless W can be readily joined by the process of metal arc welding and high joint efficiencies obtained, particularly when solution annealing followed by aging is employed as a post-welding heat treatment. Further work on the aging characteristics of single and multi-pass welds is now in progress. Welding by means of the atomic hydrogen and heli-arc methods is now being investigated and preliminary results have been successful.

* * *

"Feeder Value" of Tributary Waterways

(*Continued from page 669*)

true, then there arises the question of imputed losses. If imputed savings are to be carried back to the Big Sandy, then is appears logical on any fair principle that the imputed losses also will have to be carried back.

The idea of "feeder value" is, therefore, based upon fallacy. Every project must stand on its own basis. Each has its own costs. Traffic moving over each is used to justify these costs. This traffic can not be used a second time in an attempt to justify some other project and its costs.

Too often has the same traffic been counted more than once. The advocates of the St. Lawrence waterway have used traffic to justify that waterway which has already been used to justify improvements on the Missouri and the Mississippi rivers and the Illinois waterways, the New York Barge Canal and even the Ohio river. Advocates of the Florida Ship Canal used traffic to justify it that had already been used to justify the St. Lawrence Seaway and the Illinois waterway. The Tennessee-Tombigbee project is expected to steal traffic away from the Mississippi river.

This is threshing old straw over and over again and somewhere there must be a limit to the use of traffic in this manner. That limit is the end of the project itself. Imputed values represented by the phrase "feeder value" is, therefore, a deceptive thing, a will o' the wisp. It is a spurious value, a kind of fool's gold. It should be discarded utterly.

In undertaking to use this fallacious method the Army Engineers who plan to pump in water to make the stream navigable and to pump in savings to justify the Big Sandy project will soon find themselves pumping only sand.

A NEW "AMERICAN FLYER" scale model train will be exhibited by the A. C. Gilbert Co. at the annual Toy Fair in New York, beginning March 11, and will be on the market for the Christmas season. Bringing "scale model railroading to new heights of realism," the '46 American Flyer features:

1. Real smoke puffed from the locomotive stack, synchronized with "choo choo" sounds.

2. Lightweight plastic cars one-third the weight of the old style die-cast car.

3. A new power plant—a tiny motor that drives the locomotive—never before used on scale model trains. It is the same trim tab motor manufactured by Gilbert and used during the war in Grumman F6F Hellcats, TBF Avengers, P-47 Thunderbolts and P-40 Warhawks to activate the hydraulic valves of the planes' wing flaps.

4. An authentic two-rail track, built like the rest of the train and equipment to 3/16th inch scale and permitting multiple track layouts in small space.

5. A superpower worm drive, giving the train smooth precision control at all speeds and eliminating jerky "jack rabbit" pull.

Can Passenger Traffic Be Held?

PASSENGER men are of the opinion that a substantial proportion of the available passenger traffic can be held on the rails, providing certain improvements are made. This opinion was expressed in a report submitted at a meeting of the American Association of Passenger Traffic Officers in Chicago on February 14-15, by a committee, of which A. Cotsworth, Jr., passenger traffic manager, Burlington Lines, was chairman. The report read as follows:

The last report on this subject was submitted at the meeting in November, 1941. During the intervening four years, the demands of war not only suspended normal developments and improvements, but unfortunately and inevitably resulted in temporary deterioration of train service and equipment. Slower schedules for many of the fast trains were reluctantly adopted on the premise they would expedite movement of other trains and reduce wear and tear. Full length lounge cars were discontinued and converted to coach or other types of service and lounge chairs in remaining cars were assigned as parlor seats. Dining car menus were necessarily restricted by food rationing, the capacity of most diners was increased from 36 to 48 rather crowded seats and the service was modified to serve large crowds with inexperienced help. The man-power shortage adversely affected our passenger service in many ways. Stewardess or hostess service was largely discontinued and many other niceties had to be suspended because of the war effort.

Three pendulum type chair cars were completed shortly after Pearl Harbor, one each for the Santa Fe, Burlington and Great Northern. The name is derived from the fact that on curves the car body swings after the fashion of a pendulum, because it is suspended on coil springs on either side of the center aisle at both ends of the car, the point of contact between the springs and the car body being above the center of gravity. Side-clearances permit a limited swing, and the riding qualities are excellent, particularly when a car of this type is operated between cars of the same type. The vertical springs necessitate a center aisle over each truck so that the floor layout cannot include a side aisle at these locations.

The long distance military movements quickly demonstrating the insufficiency of existing sleeping car equipment, arrangements were made in the spring of 1943 for the construction of 1,200 troop sleepers and in the spring of 1945 for 1,200 additional such cars. These were financed by the Defense Plant Corporation, administered and operated by the Pullman Company, and paid for by the railroads at a mileage rate. These cars have bunks in tiers of three, total capacity 29, and while built for passenger train service are designed for conversion into freight cars.

Perhaps the most spectacular recent development is the Astra Dome, designed by the styling section of General Motors Corporation. This is a thermopane glass-enclosed observation deck placed midway in the roof of the car with seats for 24 passengers, permitting panoramic vision. To test public reaction the Burlington altered one of its stainless steel coaches to incorporate this feature, calling it a Vista Dome. The car made its initial trip on July 23, 1945. The reception and experience were such that a Vista Dome is being included for all coach, parlor and lounge cars of new trains which are on order by the Burlington, Rio Grande and Western Pacific, for service between Chicago and Minneapolis, and between Chicago and Oakland.

While construction of new passenger cars (other than the troop sleepers) was suspended during the war because the War Production Board ruled that materials and labor were required for even more urgent purposes, the car manufacturers designed and announced many improvements and innovations for consideration in post-war planning.

Three innovations, which are included in equipment now on order are:

(1) Ottoman type reclining chair with leg rest. This requires seat spacing of 52 in. rather than the 41½ which has heretofore been considered standard, but permits the passenger to recline more fully and have the benefit of a leg rest which comes from the chair ahead.

(2) The cabin (Budd) and modified roomette (Pullman-Standard) which require 6 ft. 5 in. of floor space, permitting 22 to a car, as compared with the original roomette which takes 7 ft. 5 in. of floor space with 18 to a car, and the duplex roomette with its average of 5 ft. 7 in., 24 to a car. The principal change from the original roomette is that the lavatory and clothes locker are placed on the aisle side rather than at the end opposite the bed.

(3) The inclusion of enclosed toilet facilities with or without shower in the double bedroom.

The Illinois Central, with the co-operation of the Edison General Electric Appliance Company, is now installing an all-electrical kitchen in one of its dining cars; the first installation of its kind. This contemplates the preparation of large quantities of food in a relatively small area. All appliances are operated on electric power from the car's own complete electricity generating plant. The result of this initial installation is awaited with much interest.

While the railroads have reason to feel elated at the numerous manifestations of progress on the part of car builders, the sobering note of increased construction, maintenance and operating costs cannot be disregarded. Nor should every innovation be embraced simply because it is new. Practically every device for application to a passenger car has something to recommend it, but if all were adopted and every type of proposed passenger car were placed in service, the cost of construction and the number of employees necessary to keep a train in operation might easily defeat the entire purpose of modernization. It behooves us to remember, however, that regardless of distance, perhaps our greatest advantage over the airplane, the bus and the private automobile is our practical ability to make it possible for people to spread out or move around while en route. We cannot hope to match the steamship in this respect, but our competition is greatest with the other forms of inland transport, so that it is to our own interest to provide ample passenger space and still have a capacity which, at any reasonable rate per mile, will yield a fair revenue per car mile.

A number of paseenger preference surveys were made during the war, those of the New York Central and Seaboard being particularly comprehensive. While made under abnormal travel conditions, the results of these various surveys will undoubtedly be reflected in many improvements and innovations, of a minor as well as major nature, which are being incorporated in plans for new equipment now being consummated.

Several improvements in the railroad plant and innovations in operating methods which have been developed will be reflected in better passenger train service. Some of these are the centralized traffic control installations on many single track main lines, radio communication, car washers, truck improvements and the use of tight lock couplers.

The *Railway Age* continued the annual preparation of a passenger progress issue and those dated November 21, 1942; November 20, 1943; November 18, 1944, and November 17, 1945, contained an exhaustive analysis of the outstanding improvements in passenger equipment which had been developed during the preceding year.

The committee is of the opinion that the thought and attention which it was possible to give during the war period of heavy volume to post-war equipment and service requirements will result in a post-war passenger train service which, coupled with an appropriate rate basis and improved standards of service and public relations at ticket offices and on trains, should result in our holding a substantial portion of available traffic.

A Guide to Better Relations with Employees

By C. W. MEYER
Assistant to President, New York Central

"The Social Problems of an Industrial Civilization" by Elton Mayo,* Senior Professor of the Department of Industrial Research, Harvard Business School, is a mature, thoughtful and practical discussion of one of the uppermost problems of our time—how people may work together more harmoniously, in the production of goods and services and in the other human relationships of an industrial age.

A quotation which well reveals the central theme of the book is: "Any industrial organization is at once a way of working—which must be technically expert and effective—and also a way of living for many people—a cooperative system which must be efficient, satisfactory as a way of living. Our civilization has been immensely successful in respect of material and technical accomplishment, an utter failure as a cooperative system." (p. 54)

Scientific Approach Used

Unlike many writers in economics and sociology, however, the author does not base either his diagnosis or his suggestions for improvement upon theoretical generalizations. On the contrary, his plea is for the application, to the problems of human relations, of the same scientific methods as have proved so successful in sciences such as chemistry, physics and medicine. These are the close observation of actual situations—the clinical method of the physician—coupled with experiment to appraise the significance of observed facts—the laboratory method of the scientist. He ascribes the great progress in the "successful sciences"—chemistry, physics, physiology, as contrasted with the failure of the "unsuccessful sciences"—sociology, psychology, political science—as due largely to the indulgence by the latter in talk and generalization as contrasted with the "patient, pedestrian work," by which the scientist has discovered truth and laid the basis for sound progress.

Such is the background against which the author reviews on-the-ground industrial studies and experiments made by the Department of Industrial Research of Harvard, in cooperation with the managements of the industries. This record is impressive and is so revealing as to merit the attention and close study of anyone who has managerial responsibility.

The author begins with studies made over twenty years ago in a textile mill near Philadelphia. Observation, according to the clinical method of the doctor, revealed the cause of, and pointed to the remedy for, excessive labor turnover, which for the operation in question had been 250 per cent annually (that is, 100 men had to be hired every year to keep 40 men working). As a direct result of the program that was instituted following the studies, labor turnover was quickly reduced to a normal level of about 5 or 6 per cent annually. Productive efficiency materially increased and the workers began to earn bonuses (as they had not previously) under the company's incentive wage plan.

There are next considered the now celebrated studies in the Hawthorne works of the Western Electric Company, extending over many years. The Hawthorne program began as a modest effort to determine cause-and-effect relationship between lighting and output. Each step revealed hitherto unrealized facts which led the investigators into new territory. It was discovered that there were close connections between things such as the feelings of workers about their jobs, their opportunities to cooperate with their associates as a "team," and other attitudes, as to alter the whole concept of the supervisory function. These attitudes were largely discovered through a thorough program of interviewing employees; a program which, according to the author, "first enabled us to assert that the third major preoccupation of management must be that of organizing team work, that is to say, of developing and sustaining cooperation." (p. 84) The other two major preoccupations of management—the application of science and technical skill to a material product, and the systematization of operations—have been adequately recognized; but the typical manager "does not realize that he has also been trained to ignore the third problem completely." (p. 85)

Labor Turnover Spotlighted

The third group of studies discussed in the book relates to absenteeism and labor turnover in certain war plants. For example, there were three companies, all located in the same city, in which were conducted virtually identical casting operations. Investigation showed that the absenteeism situation in one of these shops was quite satisfactory and improving; in the other two, it was bad, and getting worse. In the shop with a good absenteeism record there had been for twenty years careful training of foremen in the principle that a supervisor's duty has two parts—one, technical competence; the other, capacity to handle human situations. These foremen were given qualified technical assistants, so that they had time for the real responsibilities involved in team leadership. Furthermore, in this shop the foremen and the men on a shift were allowed to arrange for themselves each man's day "off" (one day in seven), thus asserting group pressure for regular attendance which "management would never dare to exercise." (p. 101) The absenteeism studies reaffirm the author's conviction that a "we" attitude on the part of workers—a sense of belonging to a team that does important work—"must characterize modern industry if it is to continue successfully its present line of development." (p. 110)

The author's long experience and observation (of which the studies outlined are samples) are the foundation for the central plea of the book—a recognition that the development of human cooperation is the first task of our time. He quotes approvingly the opinion of one of his associates "that our industrial civilization of the present is improvidently living on its capital, upon the store of human good will and self-abnegation that many centuries of established routine of living have left us." (p. 117) Our educational point of view is also criticized when the author says "We have failed to train students in the study of social situations; we have thought that first-class technical training was sufficient in a modern and mechanical age. As a consequence we are technically competent as no other age in history has been; and we combine this with utter social incompetence." (p. 120) Such considerations are the support for his conclusion that "If our social skills had advanced step by step with our technical skills, there would not have been another European war." (p. 123)

Spirit of Teamwork

Without attempting to make generalizations (which would be hazardous, in the absence of direct factual studies) one is tempted to speculate that a great point of strength in the railway industry may be that so much of its work is done by small groups of men, under conditions that lend themselves to a satisfying spirit of teamwork among themselves and with their immediate supervisors. The train crew, the track or maintenance gang and the shop gang seem to be like the type of group which the Harvard studies have found to be so well adapted to close cooperation.

One who reads this book and is familiar with the work of the subcommittee on Labor and Personnel of the Railroad Committee for the Study of Transportation is encouraged that their objective reporting of successful measures adopted by railroads for the development of employee morale and cooperation are moving toward those same ends which the author regards as so all-important. Reading of the book also suggests that further intensive studies of railway employee relations are likely to be well rewarded in terms of practical results.

Any railway man who carries this little book (only 121 pages) around in his pocket long enough to get it read in his odd moments will find his thoughts stimulated by Professor Mayo's clear thinking and factual reporting. He will be introduced to a body of ascertained facts that are a challenge to everyone who shoulders managerial responsibility.

* Published by Graduate School of Business Administration, Harvard University, Boston, 1945. $2.50.

GENERAL NEWS

Hearings Continue in Wage and Rules Case

Whitney tells board that non-conformist unions have "guts" to call strike

Emergency board proceedings in the case of the Brotherhood of Locomotive Engineers and Brotherhood of Railroad Trainmen were continued on March 19, with the unions resuming their presentation in support of their proposed rules changes. That presentation, extending into the March 20 session, involved the testimony of several employees with evidence relating specifically to the various rules changes sought.

Then followed Charles Decker, dining car steward, Southern Pacific, who testified concerning that craft. According to Mr. Decker, the proposed pay schedules would unify all rates, regardless of the years service performed by the individual steward and regardless of the assignment. This is proposed to replace what Mr. Decker called the outmoded practice of pay on a sliding or graduated scale, which, he added, has been the cause of many inequalities and injustices. Mr. Decker also explained the various working rules in effect on the different carriers and the rates of pay.

Economist Testifies—The employees' second witness at the March 21 session was Henry P. Melnikow, consulting economist, San Francisco, Cal. He described the work performed by employees under I. C. C. classifications. According to Mr. Melnikow, the tractive effort of steam locomotives in use by the carriers in 1921 totaled 2,385,470 lb., but had decreased to 2,096,046 lb. by 1944, while the number of locomotives had decreased from 64,949 to 43,607 during the same period. This decrease, he maintained, had been offset to some extent by increased use of Diesel and electric locomotives. Nevertheless, according to the witness, this has reduced the number of available locomotives with which to do the job the employees have performed during recent years.

At the resumption of the hearings on March 22, Mr. Melnikow presented various statistical data purporting to show the increased load the employees have shouldered since 1936 and how operating efficiency has increased over this period. Mr. Melnikow's next exhibit was designed to show that both fatal and non-fatal accidents had sharply increased during the past four years. According to the witness, accidents in the railway field in 1944 increased 83 per cent over 1936, and approximately 103 per cent over 1939.

The witness then presented an exhibit, which consisted of a history of the employees' basic rates from 1936 to 1945. His next exhibit was intended to show the number and earnings of transportation employees. The witness's next exhibit was based on comparisons made of skilled and semi-skilled employees in various industries.

Compares Wage Trends—There followed an exhibit captioned "Comparison of wage trends of average hourly earnings." According to Mr. Melnikow, the railroad employees have received wage increases aggregating only 31.9 per cent since 1936, while manufacturing employees have gained approximately 82.3 per cent during the same period. He also stated that some industries had received a much higher percentage of increases, but that the above figure is the average. Following this exhibit the witness presented a series of others, all designed to show the level of railroad employees' wages as compared to other industries.

The hearings were resumed on March 23, with Mr. Melnikow again on the stand for the employees. The witness stated that the marked difference between adjustments in the wages of transportation employees and the wages of employees of other industries is attributable to the fact that in 1936 and 1937 rail workers received an increase of 7 per cent, where many larger increases were secured by the workers in other industries. When January, 1941, came along, he went on, the rail men were caught with a lower base as against the higher bases which the employees of the other industries had in the meantime acquired, with the result that railway employees not only had this difference between 7 per cent and 19.7 per cent for the other industries, but also a lower base on which to figure the 15 per cent permissible rise which the "Little Steel" formula allowed. He contended that this situation aggravated and doubled the inequity.

The witness next presented an exhibit containing data relating to actual rates and earnings of skilled workers comparable with transportation employees, which was followed by another, quoting certain government officials to the effect that high post-war wage levels are necessary to the maintenance of purchasing power, full production and employment, high productivity and the prosperity of the nation.

Heller Budget—The net exhibit was captioned "Trends in Post-War Levels, Manufacturing and Non-Manufacturing Industries," and was intended to show the post-war increases in wage levels in other industries. At the conclusion of his explanation of the latter exhibit, Mr. Melnikow presented an exhibit which was a copy of a volume published by the Regents of the University of California in 1945, and consisted of the findings of the Heller Committee for Research and Social Economics

(*Continued on page 689*)

Arbitration Hearings Concluded March 26

Two boards take cases under advisement — decisions due by April 3

Hearings in the joint proceedings before the arbitration panels that are to dispose of the wage demands of 15 unions of non-operating railway employees and those of three unions of operating employees were continued, in Chicago, on March 19, with Claude G. Wilcox, road foreman of engines on the Maryland division of the Pennsylvania, as the day's first witness for the carriers.

Mr. Wilcox testified as to the work required of enginemen, stating that in his opinion, based on his 43 years' service as fireman, engineman and road foreman, the work of engine crews today is less arduous and the responsibility less than it was when he entered the service in 1902. He based his beliefs on the fact that since that time mechanical stokers had come into general service, as had widespread use of electric and Diesel power, power reverse gears had been installed in large numbers and numerous other refinements in locomotive design had been made, all of which reduced the physical labor of the employees.

Higher Speeds Benefit Employees—With regard to the matter of speed, Mr. Wilcox said that today's increased freight train speeds are almost entirely due to better operating methods that permit a train to run long distances at moderate speed, rather than to bursts of excessively high speeds. Further, he asserted that, by reason of increased time off duty and being able to "double the road" within a calendar day, increased train speeds had been of great benefit to employees.

Mr. Wilcox was followed on the stand by Dr. Jules Backman, an economist on the faculty of New York University, who resumed his testimony of March 15. Dr. Backman presented evidence tending to show that, based on estimates of post-war earnings of rail employees, take-home pay, at present wage rates, will be higher in 1946 than in 1944, after making allowances for reduced income tax rates and an end to what Dr. Backman termed "abnormally" high savings, which he said were due not so much to a necessity to save as to the absence of a normal volume of civilian production and to appeals to support the war effort through bond purchases. "In other words," he said, "even if there were no wage adjustment, there would be no need, on the basis of these figures, to reduce living standards below the war-time level."

Dr. Backman also charged that at the

present time the country was suffering from a surplus of purchasing power in relation to the goods available, rather than a deficiency, and that inflationary factors resulting from this excessive amount of purchasing power are the primary dangers to the economy of the nation.

Economist's Views—Summarizing his testimony Dr. Backman made the following points:

"First, workers in different industries have not been affected uniformly by the end of the war, whether the measurement is weekly earnings or average hourly earnings. Second, the most significant declines have been in mass production industries such as automobiles, steel, rubber, electrical equipment for building airplanes and other transportation equipment. Third, railroad workers have been affected less seriously than workers in these other industries. Fourth, wage increases approved in the mass-production industries are largely to maintain take-home pay, and therefore do not provide a guide for adjustment of wages of railroad workers. Fifth, increases of the magnitude granted or proposed for these other industries would raise railroad weekly and hourly earnings substantially above the war-time peak." The remainder of the day's session was devoted to cross-examination of Dr. Backman.

The hearing on March 20, marked the completion of the presentation of evidence in behalf of the carriers, with Daniel P. Loomis, who had previously appeared, recalled to the stand to present further testimony and L. W. Horning, vice-president personnel and public relations of the New York Central, as the witnesses for the roads. Mr. Loomis presented additional evidence comparing prospective hourly and weekly earnings of transportation employees and manufacturing employees which, he said, bore out his previous contention that rail workers faced a decrease of 9 per cent in weekly take-home pay as compared with a drop of 16 per cent for the employees of manufacturing industries, when using the method advocated by E. L. Oliver, economist for the employees.

Mr. Hornings first exhibit was designed to "demonstrate the earnings of the youngest employees, from the standpoint of service, in train and engine service, namely, brakemen and firemen having not more than one year of service with the carriers as of December 1, 1945." The exhibit showed average earnings per man for these employees separately for the Eastern, Western and Southern regions for the months of June, 1941, October, 1942, and November, 1945.

Earnings of Op Beginners—According to Mr. Horning "beginner" brakemen in the Eastern region earned an average of $180.98 each in June, 1941, $223.90 each in October, 1942, and $236.77 each in November, 1945. For the nation as a whole, this class of men averaged $166.23 each in June, 1941, $235.53 in October, 1942, and $246.26 in November, 1945. For "beginner" firemen the national average monthly individual earnings were $172.33 in June, 1941, $241.88 in October, 1942, and $242.55 in November, 1945. The figures, Mr. Horning said, cover brakemen and firemen with not more than one year's seniority in all classes of service, road freight and passenger, and yard. The exhibit also presented this information in detail by individual railroads.

The final exhibit presented by Mr. Horning was entitled "Train Status" in which he outlined the details of service rendered during a particular month, during the last half of 1945, by engineers, firemen, conductors and trainmen in both passenger and freight service on 15 roads, five in each of the three regions. In addition the exhibit showed the earnings that would have accrued had the proposed wage increase of $2.50 per basic day been in effect. Although the earnings of only 130 individual employees were shown, the number of employees who held identical work assignments on each of these roads was also shown, so that, in effect, the approximate earning opportunities of 3,342 employees were included in the exhibit.

Mr. Horning's exhibit showed monthly earning opportunities of 496 passenger firemen in regular assigned service ranging from a high of $396.61 on the Atchison, Topeka & Santa Fe, to a low of $293.04 on the Baltimore & Ohio. The highest hourly earnings among the passenger firemen were on the Seaboard where 12 passenger firemen operating between Wildwood, Fla., and Miami had earnings opportunities of $354.84 per month or $4.01 per hour on duty. During the month the particular fireman, whose earnings are considered representative of the other 11 on the same assignment, was on duty 88 hr. 25 min., and was held at the away from home terminal 103 hr. 50 min. He spent 551 hr. 45 min. at his home terminal or the equivalent of 23 calendar days. Had the $2.50 per day increase in basic wage rates been effective, his earnings would have been $466.49 during the month, or $111.67 more, and his hourly earnings would have been increased by $1.26, to $5.28. The length of the run was given as 279 miles. Similar details were given for passenger firemen on numerous other roads.

Earning Opportunities—For passenger conductors the earning opportunities ranged from a high of $471.01 in one month on the Pennsylvania, to a low of $338.96 on the Santa Fe. Earnings of freight firemen ranged from a high of $450.23 on the Union Pacific, to a low of $249.22 on the Pennsylvania. The Union Pacific firemen was shown to have been on duty 243 hr. and 59 min. during the month (September, 1945), for an average hourly earning of $1.85. He was at home 344 hr. 15 min., or the equivalent of 14 calendar days during the month. Applying the $2.50 increase to his services, he would have earned $578.02 during the month, an increase of $127.79, or $2.37 an hour. Forty-four other freight firemen are employed in this same pool between Laramie, Wyo., and Cheyenne.

Earnings of freight conductors ranged from a high of $458.66 on the Union Pacific to a low of $307.55 on the Pennsylvania. The Union Pacific conductor, one of 47 in a pool between Rawlins, Wyo., and Green River, earned an average of $1.84 per hour for 249 hr. 50 min. on duty during July, 1945. He was held at his away from home terminal for 110 hr. 45 min., and at his home terminal 385 hr. 40 min., or more than 16 calendar days at home. If the increased rate had been in effect his earnings would have risen to $593.59, an increase of $134.93 for the month, and his hourly rate would have been $2.38.

In concluding this portion of his testimony, Mr .Horning pointed out that because of the "dual" basis of pay, many employees would receive a far greater wage increase than the $2.50 per day which appears to be requested, amounting to as much as $10 and more per day in some instances.

Advantages of Railroading — Mr. Horning next enumerated some of the advantages enjoyed by railway men over the employees in other industries. Speaking of both the operating and the non-operating groups, he said the railway employee enjoys the benefits of "almost universal application of the seniority system"; advantageous retirement annuities and unemployment compensation; collective bargaining; free transportation; stability of employment; and opportunities for advancement, citing the cases of 22 railroad presidents in active service today who climbed from the ranks. Upon the completion of Mr. Horning's testimony and after questioning him on certain phases of the Railroad Retirement Act, the joint sessions were concluded at 12:45 p.m. on March 20, and were immediately followed by the presentation of separate rebuttal evidence by the employees before the respective arbitration boards.

Hearings in the non-operating union's case were resumed that same day with additional testimony by George Cucich, appearnig for the second time in behalf of the employees, who presented an additional exhibit dealing with the alleged inequity in wage rates of the non-operating employees, as compared with the operating group. In his testimony Mr. Cucich again reiterated his previous statement that wages of the non-operating employees were reduced on July 1, 1922, while wages of the operating men were undisturbed, and that this "inequity" of five cents an hour had persisted down to the present time, and added that it had, in fact, even increased so that in 1944 it amounted to 7½ cents an hour. Counsel for the employees also read into the record that portion of the testimony given by T. C. Cashen, president of the Switchmen's Union of North America, in the operating case, relating to the economic views of the members of the War Mobilization and Reconversion Board of which Mr. Cashen is a member. (*Railway Age*, March 16, p. 577.) Upon the completion of Mr. Cucich's testimony the hearing was adjourned until March 22.

Hearings before the arbitration board considering the demands of the operating employees were also continued on March 20, with the reappearance of Mr. Oliver as a witness in behalf of the employees. His first rebuttal exhibit was one in which he reproduced two articles published by the United States Department of Commerce in its October and December, 1945, issues of the Survey of Current Business, and which articles were entitled "War-Strengthened Railroads Face New Prospects." In his discussion of the first of these two articles Mr. Oliver sought to show that in the years just prior to the war the railways had been able to reverse the trend to loss of traffic to competing

transportation agencies and had regained some ground; that the prosperity of the roads themselves depended, in part, on their maintaining a high level of employment and wages; that the amount of deferred or "under" maintenance that had been allegedly occurring during the war was greatly exaggerated and was, in fact, of relatively minor importance; and that the roads had greatly inflated their operating costs by rapid amortization of equipment purchased during the war.

Oliver Optimistic—Mr. Oliver's testimony was continued on March 21, with his discussion of the second of the survey of Current Business articles described above, in which he outlined his views as to the railroad's prospects for the future. Mr. Oliver stated that it was his belief that railway operating revenues would total in excess of $9 billion in 1946, which he admitted nearly was the same as in 1944, the all time high for rail revenue. He based his predictions on the railroad's gross revenue amounting to a "normal" 6 per cent of an estimated national income of $160 billion.

Mr. Oliver next presented an exhibit bringing together more recent railway traffic and other statistics than had been presented in earlier exhibits. After presenting data for carloadings of individual commodity classifications for November and December, 1945, and for January and February of this year, he made a comparison of total loadings for each of these periods with the preceding period, pointing out that November loadings were 3.9 per cent below the preceding year, December 5.1 per cent below, January 4.6 per cent below, and February 5.6 per cent below. For the week ending March 2, the last week of the February period, he said loadings were only 0.4 per cent below the 1945 war level. Mr. Oliver expressed the opinion that cessation of the automobile and steel strikes would enable total carloadings this year to rise to, or above, the level of 1945. With respect to l.c.l. traffic, Mr. Oliver said that figures show that rail loadings are currently running about 15 per cent above levels of last year, while the tonnage of freight handled by common carrier trucks has shown a tendency to drop, in spite of the lifting of restrictions on gasoline and tires.

Mr. Oliver also presented additional statistics on rail and bus passenger traffic and on the relative importance of labor costs to value of the product in various industries. Mr. Oliver's final exhibit presented additional data on the relationship between railway revenues and the national income, following the presentation of which, he was subjected to cross-examination. The hearing for the day was concluded with completion of the cross-examination of Vice-President Horning, of N. Y. C., who had appeared as a carrier witness the preceding day.

Quotes M. W. Clement—The proceedings in the operating unions' case were continued on March 22, with the reappearances of W. B. Woodward, Jr., a locomotive engineer on the Pennsylvania and general chairman of the B. of L. F. & E. on that road, and H. W. Fraser, president of the O. R. C., as witnesses for the organizations. Mr. Woodward, in his testimony, reiterated the employees' contention that through the years the knowledge and responsibility required of men in engine service had increased. Mr. Fraser testified concerning the dual basis of pay, contending that the roads had received much benefit from this method of wage payments, and with respect to the alleged increased responsibility of train crews. In response to a question by C. J. Goff, an employee member of the arbitration panel, Mr. Fraser quoted Martin W. Clement of the Pennsylvania as favoring wage increases for railway employees, quoting from Mr. Clement's remarks in the 99th annual report of the Pennsylvania and from his remarks in an address in Philadelphia.

Upon completion of Mr. Fraser's testimony, the taking of evidence in the operating unions' case was completed. IIt was mutually agreed by the board and the parties that the report of the board should be filed on or before April 3, subject to the provision that, by consent of the parties, the time may be extended further, following which it was further agreed that oral argument would open on March 24, the employees presenting their position first.

Hearings in the non-operating unions' case were also resumed on March 22, with additional testimony in behalf of the employees by Mr. Oliver. He stated before this board, as he did before the operating case board, his opinion that ralway revenues will in 1946 approach those of 1943, or about $9 billion. He also reiterated his opinion that railway traffic, both freight and passenger, would hold up as well as, if not better than, the traffic of highway carriers. Mr. Oliver's next two exhibits also dealt with the railroads' future prospects and, like those he presented in the operating case, were based on articles appearing in the Department of Commerce publication, Survey of Current Business and in a recent report of the Senate Committee on Interstate Commerce. Again he sought to show that deferred maintenance during the war years was of minor importance and that heavy war-time amortization charges had resulted in understatement of earnings.

Oliver on Non-Op Situation—Mr. Oliver also presented a traffic exhibit similar to the one he introduced in the operating case, by which he endeavored to prove that on the basis of present carloadings, the decline in rail traffic resulting from the war's end had already been arrested and that future traffic levels this year could be expected to approach those of 1944. Mr. Oliver also presented additional evidence supporting his contention that the non-operating employees of the railways had suffered, with respect to average straight-time hourly earnings, as compared with employees of manufacturing industries. His final exhibit, on which he made no comments, consisted of copies of the report of the Senate Labor Committee on Amendments to the Fair Labor Standards Act.

Following cross-examination of Mr. Oliver, the proceedings were adjourned until March 25, on which date closing arguments of the parties began.

Closing arguments in both the operating and non-operating cases began on March 25 and were concluded on March 26, at which time the respective arbitration boards received briefs and took the cases under advisement. Unless an extension of time is agreed to by the contestants, decisions are due on or before April 3.

In the non-operating case, closing argument on behalf of the employees was presented by Lester P. Schoene, general counsel, who declared that the requested wage increase of 30 cents an hour to the non-operating employees was justified because the work of these men was roughly comparable to the work of the employees of manufacturing industries and that, by comparison, railway workers had seen an advantage of 6.6 cents in hourly earnings in 1921 converted to a loss of 21.4 cents hourly in September, 1945, In spite of increased wage payments to them. Mr. Schoene declared that even if the board did not desire to go back to 1921 in its attempt to correct "inequities" between railway and other wage rates it would still find it necessary to raise the pay of the employees by 11½ cents an hour to make up for a relative loss since 1939, and by 18½ cents hourly in addition to keep pace with post-war increases in outside industries. He also asserted that the requested increase in wages was justified to compensate the employees for increased work hazards and greater employee productivity.

Ability to Pay Irrelevant—With respect to the financial conditions of the industry, Mr. Schoene asserted that the question of whether the industry is financially in a position to pay equitable wages and still make a profit is irrelevant to the question of whether they should pay equitable wages. And "we have predicated our demands purely on the proposition that we, as a matter of equitable treatment, are entitled to the same hourly rates that are paid in other industries." He further asserted that it was "the declared policy of Congress to provide for the payment of fair wages" and that it was left to the Interstate Commerce Commission and to Congress to so handle the industry to bring about that result. However, he said that the present financial position of the roads makes this a favorable time to correct these inequities.

Mr. Schoene further argued that the railways were in a favorable position to pay increased wages because they were entering a period of greater traffic than ever before. He said that it was his belief that the ideas of the 'thirties that the railways were an industry that was relegated to the doldrums, was erroneous and that the prospects of the future years indicated a period in which the railway plant would be used to the extent of its capacity. In closing, he declared that while the award of the board will necessarily be binding it will not necessarily settle the wage question, which, he said can be re-opened again immediately, under the provisions of the Railway Labor Act. He asserted that unless a "fair and adequate" award is made, the employees will lose faith in the process of adjudication of wage disputes.

Closing argument for the employees in the operating case was given by Harold C. Heiss. Before beginning the final arguments, Mr. Heiss announced that an agreement had been reached with the carriers to

the effect that any increase granted by this board should be the same, in amount per hour, or per day, for all employees now before the board. In opening his final statement, Mr. Heiss declared that the only issue before the board was whether or not the "prosperity and high standard of living, which we have the right to anticipate and which is imminent, be shared by railroad labor" or whether railroad labor shall be "excluded therefrom by denial its just demands for wage increases." Mr. Heiss asserted that the national program of increased production and consumption required that the requested increase of $2.50 a basic day be granted. He charged that, in opposing the wage increase, the leaders of the rail road industry were asking an exemption from the policy of the national government.

Sees Adequate Funds—Mr. Heiss asserted that the arbitration board had a duty only to determine what is a fair and equitable wage and that the responsibility for determining the effect of wages on the revenue needs of the carriers lay with the I. C. C., while the responsibility for adjusting competitive conditions between the roads and other agencies of transportation also lay with other governmental bodies. Nevertheless, he said that, because of the roads' favorable cash positions their high earnings of recent years and prospective record-breaking traffic levels, the carriers would be able to meet the impact of the requested wage increase without difficulty.

He also asserted that the record shows that on the basis of the ratio of wages to operating revenues, the roads had been able immediately to absorb every wage increase made since 1921, and that thereafter the ratio had declined. Mr. Heiss also stated that the Arbitration Board had authority to grant, under the wage stabilization regulations, any increase in wages it saw fit, and that the carriers had authority to go directly to the I. C. C. for permission to increase rates to recover the costs of such an increase without the approval of any of the government's stabilization agencies.

Mr. Heiss declared that the employees were entitled to an increase in pay to meet the increased cost of living, to raise their standards of living, to recompense them for their increased productivity, and to overcome the effects of "inequities" when compared with wages paid in other industries.

Closing Argument for Carriers—Following Mr. Heiss' presentation, Elmer A. Smith began the closing argument for the carriers. In opening his statement Mr. Smith charged that the board had a responsibility to the public as well as to the carriers and their employees and that the public interest in the proceedings should be carefully weighed. Mr. Smith asserted, that on the basis of the current level of employment, if the roads were to grant in full all of the requested wage increases, their wage bill would be increased by nearly a billion dollars.

Mr. Smith declared that the carriers did not hold to the belief that the stabilization policy had no effect on the proceedings and that the board must give consideration to the inflationary effects of any increase it might grant. He asserted that since 1941 the roads had absorbed wage increases totaling $576 million, vacation allowances of $50 million, and price increases of $345 million, or a total of $971 million without any increase in freight rates and only a 10 per cent temporary increase in passenger rates.

In the non-operating case, closing argument in behalf of the carriers was presented by Bruce Dwinell. He asserted that regardless of the outcome of this case, the carriers would have to go before the I. C. C. for a freight rate increase, based on Dr. Parmelee's estimates of future traffic levels, and that for every cent of additional hourly wage increase granted, the roads' revenue needs will be increased by $36 million. He charged that since 1936, although hourly earnings of railway employees had increased 43 per cent, production in gross ton-miles per employee hour had risen only 16 per cent. Mr. Dwinell expressed his opinion that the board was an instrument of the wage stabilization procedure as well as of the Railway Labor Act, and that, as such, it must give consideration to the stabilization policy and to any price (rate) increases which might result from its decision.

Correction—Reading Locomotive

In an article appearing in the March 23 issue of *Railway Age*, the second paragraph of the description of the Reading Class T-1 Locomotives should have read as follows:

"Of the first 20 locomotives, the driving axles of 19 had driving boxes with Hennessy lubricators and one locomotive was equipped with Timken roller bearings. Of the 10 locomotives now under construction, 9 are being equipped with Timken roller bearings on the driving axles and one with crown bearing journal boxes fitted with Hennessy lubricators."

Ingalls Shows First Diesel-Electric Locomotive

The Ingalls Shipbuilding Corporation, Pascagoula, Miss., exhibited its first Diesel-electric locomotive at the Atlanta Terminal, Atlanta, Ga., on March 21, 1946. It is designed as a general purpose locomotive, suitable for either switching and transfer service or as a road locomotive for both freight and passenger service.

The locomotive is powered with a 1,650-hp. Diesel engine, 1,500 hp. of which is available at the main generator for tractive power. It has a starting tractive force of 72,000 lb. at 30 per cent adhesion and a continuous tractive force of 42,800 lb. The maximum speed is 65 m.p.h.

Five Million Suit Against Burlington Is Dropped

Legal action to collect $5,000,000 from the Chicago, Burlington & Quincy as back rentals realized in terminal operations in the North Kansas City industrial district, was dropped on March 20 in the court of United States District Judge R. M. Hulen at St. Louis, Mo. Dismissal of the suit was asked by Terminal Shares of Kansas City, which originally brought the suit as a representative of the Armour and Swift packing companies and other interests.

Terminal Shares had previously based its claim on the allegation that the Burlington has gained a profit through not paying a fair rent for use of terminal facilities.

There is still another count pending against the Burlington which asks damages of $5,000,000 for "interference" with a transaction for the sale to the Missouri Pacific of Terminal Shares' interest in the North Kansas City property. This suit was not affected by the St. Louis hearing, and attorneys for the Burlington announced that a motion for summary judgment on this count would be argued in the near future.

Santa Fe Cuts Passenger and Freight Running Time

Drastic cuts in the running time of its passenger and freight trains between Chicago and the West Coast have been announced by the Atchison, Topeka & Santa Fe. Coincident with the new schedules it was reported that the Chief will hereafter be powered with Diesel-electric locomotives, making it the only daily trans-continental passenger train operating between Chicago and Los Angeles, Cal., to be so powered.

Running time of the Santa Fe Super Chief and El Capitan will be reduced 2 hr., to 39 hr. 45 min. Schedule of the westbound Chief will be reduced 1 hr. 49 min. and eastbound 24 min., with an overall time westbound of 48 hr. and eastbound 47 hr. Time of the Grand Canyon Limited, Chicago to Los Angeles, will be reduced 5 hr. 15 min., providing materially improved service along its route. Eastbound the reduction will be 9 hr. 35 min. The Chicago to Los Angeles California Limited will be cut 3 hr. 45 min., and eastbound 30 min. The road's economy train, the Scout, will make the run from Chicago in 59 hr. 15 min. westbound, a reduction of 3 hr. 15 min. Eastbound the running time will be reduced by 1 hr. 45 min. The new passenger schedules become effective April 1.

A reduction of 24 hr. in transcontinental freight schedules between Chicago and California and Arizona, both east and westbound, will result in substantial improvement in schedules to intermediate points and applies to all classes of freight. The new freight service became effective March 23.

Western Roads Speed Trains

Drastic revisions in passenger train schedules have been announced by various western railways, some effective April 14, and others to change on June 2. On April 14, the Rock Island will cut nearly two hours from the time of its fast Texas Rocket, operating daily between Kansas City, Mo., and Ft. Worth, Tex., and Dallas. On that same date, the Southern Pacific will revise its schedules on the Pacific Coast, speeding virtually all trains in that area, and restoring to service the noon Daylight between San Francisco and Los Angles, and the Beaver between San Francisco and Portland, Ore.

Commencing on June 2, schedules of the so-called "secondary" trains between Chicago, New Orleans and the Pacific Coast will be reduced to approximately 48 hr. Among the famous trains involved are the San Francisco-Overland Limited, the Portland Rose and the Los Angeles Limited of the Chicago & North Western, Union Pa-

cific and, in the case of the San Francisco train, also of the Southern Pacific; the Golden State Limited of the Chicago, Rock Island & Pacific, Southern Pacific; and the Sunset Limited of the Southern Pacific. Also commencing on June 2, the economy-type trains of these roads will revert to pre-war schedules and equipment, and the streamliners City of Denver, City of Los Angeles, City of Portland and City of San Francisco will operate on faster schedules.

Complete details, including schedules, of these and other changes of train service on western lines will appear in the *Railway Age* for April 6.

Freight Car Loadings

Figures on loadings of revenue freight for the week ended March 23 were not available when this issue went to press.

Loading of revenue freight for the week ended March 16 totaled 799,882 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, March 16, 1946

District	1946	1945	1944
Eastern	158,447	167,828	157,001
Allegheny	171,795	183,167	175,292
Pocahontas	60,362	52,714	54,550
Southern	139,329	129,678	127,051
Northwestern	88,094	83,241	84,568
Central Western	118,724	125,914	117,760
Southwestern	63,131	74,014	68,973
Total Western Districts	269,949	283,169	271,301
Total All Roads	799,882	816,556	785,195
Commodities:			
Grain and grain products	48,354	44,070	44,958
Livestock	15,193	14,347	14,587
Coal	188,469	169,709	168,099
Coke	13,146	15,400	15,140
Forest Products	42,273	41,904	45,547
Ore	10,380	17,080	13,693
Merchandise l.c.l.	123,018	108,578	106,110
Miscellaneous	359,049	405,468	377,061
March 16	799,882	816,556	785,195
March 9	786,202	767,055	780,265
March 2	782,397	785,736	786,893
February 23	723,281	772,396	780,984
February 16	707,054	784,703	774,237
Cumulative Total, 11 Weeks	8,118,811	8,425,489	8,665,169

In Canada.—Carloadings for the week ended March 16 totaled 71,372 cars, as compared with 68,406 for the previous week and 68,513 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
March 16, 1946	71,372	38,492
March 17, 1945	68,513	40,885
Cumulative Totals for Canada:		
March 16, 1946	722,492	382,577
March 17, 1945	716,351	402,325

C. & O. Discloses Features of Its New Passenger Trains

New and original features to be incorporated in the Chesapeake & Ohio's streamlined trains currently on order for the daily run between Washington, D. C., and Cincinnati, Ohio, include a moving picture theater, a dining system that will eliminate waiting for meals, art and industrial exhibits, news ticker, travelog and library services, curved aisles for smooth passage through train, spacious lounge area in every coach, special facilities for the care and entertainment of children, and telephone for passenger use while train is in motion.

The plans of the railroad to improve its post-war passenger service, developed by C. & O. officers, personnel and consulting experts, are disclosed by Carl E. Newton, president, in his annual report to the stockholders. The equipment, which will be built by the Edward G. Budd Manufacturing Company, also will provide modern air purification and sanitation, observation vistadomes, and other recent developments of the car and equipment builders.

The C. & O.'s coal-burning steam turbine electrically driven locomotives now under construction will haul the trains. Another forward-looking step reported by the company is a long-term program of rebuilding and modernizing certain passenger stations.

Reclamation Plant Set Up by A. C. L.

A rail reclamation plant has been established by the Atlantic Coast Line at South Rocky Mount, N. C. The plant, covering an area of approximately four acres, will have capacity to produce about 175 gross tons of first class relay rail per working day from used rail taken out of track, much of which was heretofore sold as scrap.

Construction of the plant was begun last August and completed in December except for the installation of machinery. The machinery, consisting of straightening press, rail drill and friction saw, is now being installed and the plant is expected to be ready for operation early in April.

The plant will operate on an assembly line basis. Rails to be reclaimed are unloaded from cars as received from line of road and set on skids. The rail will pass through the plant on a fixed conveyor, equipped with roller bearings, arranged so that operations not needed on a particular piece of rail may be by-passed.

Time required per rail—less than two minutes.

N. & W. Plans New Norfolk-Cincinnati Coach Train

A fast all-coach, luxury train, operating between Norfolk, Va., and Cincinnati, Ohio, on a schedule which reduces the Norfolk & Western's fastest running time between the two terminals by an average of three and one-half hours, will be placed in service by that road in the near future, according to a March 22 announcement. At the same time, announcement was made of a contest to name the train, in which the railroad will offer a total of $750 in cash prizes—$500 for the best name submitted and $25 each for the ten next best.

Operating on a daylight schedule as a reserved seat coach train, the streamliner will make the run between Norfolk and Cincinnati in approximately 15 hours. The westbound train, No. 25, will leave Norfolk at 7:30 a. m. and arrive in Cincinnati at 11:15 p. m. Eastbound, No. 26, will depart from Cincinnati at 8:00 a. m. and reach Norfolk at 11:45 p. m.

Equipment for each of the new trains will include streamlined Class J steam locomotives; five air-conditioned coaches; a tavern lounge; and a dining car. Interior color schemes will be harmonizing pastel shades of blue, emphasized by chrome trim. Adjustable roomy seats, individual seat lights and overall indirect fluorescent lighting; rubber tile flooring; wide plate glass windows; large full color photo-murals; and commodious smoking and wash rooms will be featured in all coaches.

The train name contest opens on March 24 and closes at midnight, March 30. The contest is open to everyone except officers of the Norfolk & Western, their staffs and members of their families. Entry blanks will be contained in a series of newspaper advertisements.

Freight to West Coast Now Twenty-Four Hours Faster

Western lines, on March 21, reduced the running time of through freight trains between Chicago, St. Louis, Mo., and Minneapolis, Minn., and St. Paul and Pacific Coast points by 24 hr., thus restoring pre-war transcontinental freight schedules. Under the new schedules, freight moving in either direction between Chicago and major Pacific Coast cities will be delivered on the seventh morning after departure. Between St. Louis and California points sixth morning deliveries are provided, with seventh morning deliveries between St. Louis and points in Oregon and Washington. The new schedules are effective via the lines of all major western carriers participating in this traffic.

Safety Discussed at Southern & Southwestern Railway Club

Safety was the subject of an address by C. M. Kimball, assistant to vice president, safety, Southern, Washington, D. C., delivered before the Southern & Southwestern Railway Club at the Ansley Hotel, Atlanta, Ga., on March 21, 1946. Following Mr. Kimball's speech, the subject was discussed by several of the 230 members and guests present. President R. B. Hunt, superintendent of motive power and machinery, Florida East Coast, presided at the meeting, assisted by A. T. Miller, assistant superintendent motive power, Atlanta & West Point, secretary and assistant treasurer of the club.

At a business session held during the meeting, the members voted to hold its first annual outing since the beginning of the war at Jacksonville, Fla. on July 18, 1946. The next bi-monthly meeting of the club will be held on May 16, 1946, at the Ansley Hotel, Atlanta, Ga., at which time R. G. Henley, general superintendent motive power, Norfolk & Western, will address the club on the subject of "Modern Coal-Burning Steam Locomotives".

N. I. T. League Officer Alarmed by Small Freight Car Orders

Enlightenment on past, immediate and future problems of the nation's railroads was given the students of the Rail Transportation Institute, which has been in session for the past four weeks at American University, Washington, D. C., by spokesmen for the Office of Defense Transportation, the United States Chamber of Commerce and the National Industrial Traffic

Selected Year-End Income and Balance-Sheet Items of Class I Steam Railways

Compiled from 131 reports (Form IBS) representing 135 steam railways
(Switching and Terminal Companies Not Included)

Income Items	All Class I Railways: For the month of December 1945	For the month of December 1944	For the twelve months of 1945	For the twelve months of 1944
1. Net railway operating income	*$36,840,244	$72,971,564	$850,283,690	$1,106,327,151
2. Other income	30,877,846	39,370,628	204,985,753	211,540,755
3. Total income	*5,962,398	112,342,192	1,055,269,443	1,317,867,906
4. Miscellaneous deductions from income	10,191,763	6,294,173	38,587,636	41,717,340
5. Income available for fixed charges	*16,154,161	106,048,019	1,016,681,807	1,276,150,566
6. Fixed charges:				
6-01. Rent for leased roads and equipment	10,270,091	13,472,748	140,842,199	156,442,968
6-02. Interest deductions[1]	36,537,186	35,115,145	381,139,768	406,958,039
6-03. Other deductions	259,261	202,417	1,493,042	1,606,921
6-04. Total fixed charges	47,066,538	48,790,310	524,075,009	565,007,928
7. Income after fixed charges	*63,220,699	57,257,709	492,606,798	711,142,638
8. Contingent charges	11,435,206	12,832,769	45,222,120	45,086,970
9. Net income[2]	*74,655,905	44,424,940	447,384,678	666,055,668
10. Depreciation (Way and structures and Equipment)	28,465,582	28,726,831	334,236,912	323,155,416
11. Amortization of defense projects	394,040,904	18,899,496	825,097,745	191,048,743
12. Federal income taxes	*361,540,241	62,722,100	307,383,568	1,303,895,493
13. Dividend appropriations:				
On common stock	31,041,981	17,595,565	205,007,123	191,401,097
On preferred stock	5,622,799	4,905,462	48,448,793	54,577,119
Ratio of income to fixed charges[3] (Item 5 ÷ 6 - 04)	.....	2.17	1.94	2.26

Selected Assets and Liability Items	All Class I Railways: Balance at end of December 1945	Balance at end of December 1944
17. Expenditures (gross) for additions and betterments—Road	$240,132,617	.....
18. Expenditures (gross) for additions and betterments—Equipment	309,356,359	.....
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Ttotal, Account 707)	571,812,716	$589,615,428
20. Other unadjusted debits	166,760,620	154,023,847
21. Cash	968,456,129	931,868,523
22. Temporary cash investments	1,593,176,573	1,833,332,775
23. Special deposits	189,797,707	207,748,355
24. Loans and bills receivable	520,368	354,002
25. Traffic and car-service balances—Dr.	36,779,787	48,998,630
26. Net balance receivable from agents and conductors	106,889,955	142,289,303
27. Miscellaneous accounts receivable	493,338,627	616,526,860
28. Materials and supplies	595,759,037	603,900,898
29. Interest and dividends receivable	29,730,419	29,738,913
30. Accrued accounts receivable	275,928,181	340,077,561
31. Other current assets	82,665,042	51,514,944
32. Total current assets (items 21 to 31)	4,373,041,825	4,806,350,764
40. Funded debt maturing within 6 months[3]	109,149,719	115,813,432
41. Loans and bills payable	11,104,059	11,185,000
42. Traffic and car-service balances—Cr.	152,472,824	199,892,079
43. Audited accounts and wages payable	481,227,444	430,855,373
44. Miscellaneous accounts payable	184,733,005	178,390,079
45. Interest matured unpaid	77,318,822	69,810,182
46. Dividends matured unpaid	16,592,481	15,285,493
47. Unmatured interest accrued	57,596,832	53,831,050
48. Unmatured dividends declared	27,749,617	22,542,703
49. Accrued accounts payable	227,776,202	244,099,481
50. Taxes accrued	757,424,586	1,694,551,307
51. Other current liabilities	126,741,105	110,911,086
52. Total current liabilities (items 41 to 51)	2,120,736,977	3,031,353,833
53. Analysis of taxes accrued:		
U. S. Government taxes	637,264,654	1,561,754,600
Other than U. S. Government taxes	120,159,932	132,796,707
54. Other unadjusted credits	407,813,248	330,544,899

[1] Represents accruals, including the amount in default.
[2] After deduction of the following amounts to create reserves for land grant deductions in dispute: Dec. 1945, $5,934,804; Dec. 1944, $4,582,125; 12 months of 1945, $48,339,866; 12 months of 1944, $46,569,868. Net income is also affected by charges to the amortization of defense projects accounts of $376,584,856 for December 1945 and $593,884,938 for the twelve months of 1945 in excess of normal accruals, and credits to railway tax accruals of $264,106,376 and $433,867,450, respectively, resulting from the shortened period of amortization.
[3] Includes payments of principal of long-term debt (other than long-term debt in default) which will become due within six months after close of month of report.
* Decrease or deficit.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

League at informal sessions at the home of the university's president.

Highlight of the March 25 program was an address by E. F. Lacey, executive secretary of the N.I.T. League, who warned the group that both shippers and carriers are today faced with the most serious car situation, particularly Class A box cars, that has existed for many years.

Mr. Lacy pointed out that as of January 1, 32.64 per cent of the nation's freight cars were over 25 years old. He added that during 1945 Class I roads retired a total of 45,541 cars, while installing only 36,976, of which 1,506 were railroad owned, privately controlled refrigerator cars. The speaker also explained that another 19.01 per cent of the cars are from 16 to 20 years and 18.94 per cent from 21 to 25 years old.

Mr. Lacey said that shippers were alarmed over the comparatively small number of freight cars now on order. He disclosed that the O.D.T. has suggested the carriers should place orders for 150,000 new cars, but that as of March 1, only 39,191 have been ordered as compared with 37,166 on the same date last year.

"Now that the war is over," he added, "there is every reason to believe that the volume of tonnage which will be tendered the carriers will grow by leaps and bounds and their ability to furnish sufficient transportation will be taxed to the breaking point." He also suggested that the roads install dual springs on their cars in order to afford ample protection to both light and bulky freight.

Mr. Lacey recommended that the railroads should improve their merchandise service and schedules, in addition to publishing a directory of merchandise cars which they operate. He said there was room for improvement in the education of railroad representatives and solicitors, observing that in many cases it has been found that carrier representatives were not fully capable of giving shippers full information in regard to schedules, tariffs, connecting lines, etc.

The problems confronting shippers with respect to turn-around time and the cleanliness and mechanical inspection of cars were pointed out by the speaker, who advocated that the railroads should continue to practice the efficiency methods they adopted during the war, particularly in the car-loading phase of the industry.

Appearing on the same program with Mr. Lacey was Col. Albin Barber, manager of the transportation department of the U. S. Chamber of Commerce. He compared the roles played by the railroads during the two world wars and described the economic conditions faced by the carriers during the last depression. Discussing the railroads "from a general business point of view," the speaker predicted that despite the growth and popularity of other types of carriers, including air, "the established and irreplaceable railroads would continue to be the most important means of American transportation."

J. Monroe Johnson, director of the O.D.T., appeared before the Institute on March 20, at which time he scored the wartime allocation by the War Production Board of materials to the transportation industry and the drafting of more than 30 divisions of railroaders into the armed forces. He claimed there was "too much conglomerate judgment" of various governmental bodies affecting the nation's transportation during the war. (Excerpts of a recent letter addressed to the Association of American Railroads by Col. Johnson will be found elsewhere in this issue.)

C. N. J. Will Sell Steamboat "Sandy Hook"

The S. S. Sandy Hook, passenger steamboat which for many years plied between New York and Atlantic Highlands, N. J., during the summer months, is being placed on sale by the Central of New Jersey. Plans for the sale were announced recently by William Wyer, chief executive officer of the road, on receipt of word from the U. S. Army that the ship would be immediately returned to the Jersey Central. The Army took possession in 1941.

The Sandy Hook, which has a passenger capacity of 1,974, made its last trip over the Jersey Central's water route between New York and the Central New Jersey seashore resort area in September, 1941. The Jersey Central had operated excursion

and commuter steamboats over this route or similar ones since 1860, but because of the long discontinuance of service its authority to operate such service has lapsed.

The road's announcement pointed out, however, that the service may be taken over by an interested individual or group eligible for a charter. Several persons already have expressed a desire to establish a New York-to-Atlantic Highlands service, it added.

Hearings Continue in Wage and Rules Case

(*Continued from page 683*)

of the University of California as to the cost of war-time budgets for three income levels as of March, 1945, and which exhibit was accompanied by another designed to show the cost of living for the average American family of four. According to the latter exhibit, the total cost of consumer goods required to sustain this family was $3,220 per annum. This did not take into consideration income tax and railroad retirement tax which would require $360 more or a total of $3,580. According to the witness, only 18.4 per cent of the employees represented have earnings equal to or above these requirements.

The employees' next exhibit was designed to show railway revenues and expenses. According to the witness, wages in 1936, per dollar of operating revenue, required 45.6 cents, for 1944 this was 40.8 cents or a reduction of 10.5 per cent.

Referring to the amortization of defense projects, the witness quoted the magazine Wall Street of December 8, 1945, as follows: "Estimated net income for Class I railroads in September dropped to around $10.2 million from the $55.5 million reported for September 1944. Much of the slump is attributable to bookkeeping policies in speeding up tax accruals, amortization and deferred maintenance charges. The carriers can now plead poverty while wage boosts demands are being arbitrated."

Mr. Melnikow's final exhibit was designed to emphasize the importance of a high national purchasing power to the railroads. According to the witness, the carriers have every reason to lead the procession of maintaining and increasing purchasing power, because they have more at stake than any other industry in connection with business activity being maintained at a high level.

Whitney Testimony—At the resumption of the hearings on March 25, A. F. Whitney, president of the Brotherhood of Railroad Trainmen was recalled to the witness stand. According to Mr. Whitney the B. of R. T. represents 218,000 employees. He contended that the carriers have tried to kill the basic issues involved in this case by stalling tactics. He claimed that they have not made an honest effort to negotiate these grievances and asserted that the only reason for their counter proposals are for trading purposes. The witness also stated that the carriers have done everything possible to coerce the employees into dropping their rules proposals.

Mr. Whitney declared that the carriers' propaganda program carried on through the columns of the press, magazines and radio was costing millions of dollars and that their failure to equip their rolling stock with modern safety devices had also caused the spending of many more millions and had resulted in the death and injury of thousands of their employees. According to the witness, much of this toll could have been avoided had they not been so obstinate in failing to improve working conditions.

In his reference to wage scales, Mr. Whitney stated, "In 1936 we stood at the top of the list of employees being paid for skill, responsibility and productivity. We were exceeded only by the Typographical Union. In January, 1941, because of our inability to have ourselves heard within the proper time in our 1937 demands, we slipped to sixth place; and because of the barriers of the "Little Steel" formula and the prohibitions of the Stabilization Law, we slipped to 21st place on the list by September, 1945; and today, by percentage increase in average hourly earnings, we stand last, or 27th on the list."

More Output Per Man-Hour—Continuing his testimony, Mr. Whitney stated that per man-hour of transportation, employees have given the railroads 57 per cent more output in 1945 than in 1936. He maintained that this was a record unparalleled in any other industry and that this was accomplished only by every engine and train service man not only working longer hours, but also enduring physical and nervous strain during each hour worked. That, he added, was caused by longer trains, heavier tonnage per car and per train, and double the number of passengers to take care of, all of which meant more work and less time and space in which to perform it.

The witness declared that it is tragic that such a group of employees should be compelled to take a strike vote to enable them to get consideration of their demands. Because of the indifference of the carriers, he said, the employees had been forced to go to considerable expense in taking this strike vote and preparing for these hearings.

Regarding the proposed rules changes, Mr. Whitney stated that the program embraces many rules that, if adopted, will eliminate some of the hazards confronting railway men. He also declared that the carriers will do nothing in the way of granting rules changes to promote safety unless they are compelled to do so.

Have "Guts" to Strike—Mr. Whitney asserted that the Brotherhood of Locomotive Engineers and the Brotherhood of Railroad Trainmen were not in the labor business for the purpose of lowering the standard of the men they represent, but that they were in the business for the purpose of building and to undertake to keep up with the progress of the times. He also stated with reference to the carriers' proposals for rules changes that he desired to emphasize what A. Johnston, grand chief engineer of the B. of L. E., had previously said before the board, "And I don't wish to make it as a threat, but as a statement that will be inescapable, and that is that an adoption of these rules as proposed by the carriers, or an effort to reduce the standard of living or working conditions of the men on the American railroads by the adoption of these rules, will be a signal for a nation-wide strike, and we have got the guts to prove it."

In closing, Mr. Whitney stated that the carriers in their attempts to forestall the rules changes and wage increases had, by their tactics, tried to turn the hearings into a burlesque with exaggerations and absurd statements.

The chairman announced that there were four or five parties included in these proceedings that were not represented by the American Short Line Railroad Association or by the conference committees. He stated that these parties would be given an opportunity on the afternoon of April 1 to make their appearance and present their cases.

The employees' last witness for the day was J. P. Shields, first assistant grand chief engineer, B. of L. E., who presented testimony regarding standardization of wage rates between the territories. He contended that this propasal was necessary to correct existing inequalities in the rates of pay of engineers as between the western and the eastern and southeastern territories.

More Coast-to-Coast Service

Additional daily coast-to-coast through sleeping car service was announced this week by the New York Central and Pennsylvania which will tie up on alternate days with the Exposition Flyer of the Chicago, Burlington & Quincy, Denver & Rio Grande Western and Western Pacific to provide New York-San Francisco accommodations. This arrangement will also provide the first new through cars to serve Denver, Colo.

From New York the through cars will be carried on the N. Y. C.'s Commodore Vanderbilt and the P. R. R.'s General. The first run will be eastbound out of San Francisco on the Exposition Flyer at 4 p.m. on March 31, the cars to arrive in New York on the Commodore Vanderbilt at 9:30 a.m. April 4. Meanwhile the first westbound cars will have left New York at 4:05 p.m. April 3 on the General to connect with the Exposition Flyer which will leave Chicago at 12:35 p.m. the following day.

The N. Y. C. has also announced that beginning March 31 its Iroquois, leaving New York at 11:30 p.m. will include through San Francisco and Los Angeles cars, the San Francisco car to go on the Overland Limited of the Chicago & North Western, Union Pacific, and Southern Pacific, and the Los Angeles car on the Los Angeles Limited of the Northwestern-U. P. route. Eastbound the service will be operated over the same routes, leaving San Francisco at 7:00 p.m. and Los Angeles at 5:30 p.m.

On March 25, the Pennsylvania announced "the first through sleeping car service between Washington, Baltimore and San Francisco" to be inaugurated on March 31, in conjunction with the C. & N. W., U. P. and S. P. A daily coast-to-coast car will be placed in operation.

Westbound, the new car will operate in the Golden Arrow from Washington-Baltimore to Chicago, and in the Overland Limited from Chicago to San Francisco. Departure from Washington will be at 10:50

p.m. and from Baltimore at 11:43 p.m., Eastern Time, with arrival in Chicago at 4:40 p.m., Central Time, the next day. The car will then be switched to the C. & N. W., departing at 8:15 p.m. and arriving at San Francisco at 9:20 a.m., Pacific Time, the fourth morning after leaving Washington.

Eastbound, the car will be in the Overland Limited, leaving San Francisco at 7:00 p.m., Pacific Time, and arriving at Chicago at 8:30 a.m., Central Time, the third morning. It will then be switched to the Pennsylvania, departing from Chicago at 11:30 a.m., Central Time, in the Manhattan Limited, with arrival at Baltimore at 6:15 a.m. and at Washington at 7:20 a.m., Eastern Time, the fourth morning from the West Coast.

It is pointed out that Washington's and Baltimore's new through car to the West Coast will provide service to such intermediate points as Omaha, Neb.; Cheyenne, Wyo.; Ogden, Utah; Reno, Nev.; Sacramento, Cal., and Oakland.

Equipment on Order

Class I railroads on March 1 had 39,191 new freight cars on order, according to the Association of American Railroads. On the same date last year, they had 37,166 on order.

This year's March total included 13,767 hopper (including 3,423 covered hoppers), 5,664 gondolas, 705 flat, 13,550 plain box, 3,785 automobile, 1,620 refrigerator and 100 miscellaneous freight cars.

The Class I roads also had 463 locomotives on order March 1, compared with 546 on the same day in 1945. The former total included 85 steam, six electric and 372 Diesel-electric locomotives, compared with 138 steam, two electric and 406 Diesel-electric one year earlier.

Class I roads put 4,807 freight cars in service in the first two months in 1946 compared with 8,384 in the same period last year. Those installed in the first two months this year included 1,231 hopper (including 48 covered hoppers), 977 gondolas, two refrigerator, 13 flat, 718 automobile box and 1,866 plain box freight cars.

They also put 28 new locomotives in service in the first two months of this year, of which 17 were steam and 11 Diesel-electric. New locomotives installed in the same period last year totaled 80, of which there were five steam and 75 Diesel-electric.

Nickerson and Whittemore Speak Before N. E. Shippers Board

Among the speakers at the New England Shippers Advisory Board meeting held on March 20 in Springfield, Mass., were E. C. Nickerson, assistant general traffic manager of the New York, New Haven & Hartford, and Lawrence F. Whittemore, president of the Federal Reserve Bank of Boston.

In addressing the luncheon meeting, Mr. Nickerson asserted that "If the railroads in America are ever taken over by the government, this would undoubtedly mean that much of the private industry in this country will eventually suffer the same fate.

"Railroads have been preparing for the period of high industrial and commercial activity ahead of us. By their record in that period, just as was the case during the war, they intend to furnish the answer to all critics of private ownership and operation. . . . Successful operation will be dependent upon, aside from government policy, four main groups—namely, railroad management, railroad patrons, railroad labor and railroad investors. The interest of each of these groups must be reasonably reconciled with the interests of all the other groups, or none are apt to benefit. . . ."

Mr. Whittemore spoke of New England's industrial future which he feels "has been approached in a defensive sense rather than offensively," with too much stress laid on recreation and agriculture. New England's leaders of industry, Whittemore said, have "paid too little attention to public affairs and legislative matters, except when attacked by organized labor, tax authorities or others.

"Through what I believe to be mistaken Governmental policy, the industrial expansion incident to the war effort was given largely to sections of the country not heretofore industrialized in order to remove from the presumed danger of the Atlantic Seaboard much of the industrial production of the country. We, therefore, find ourselves in New England with fewer new modern war plants available for post-war reconversion and exploitation.

"The protection, development, extension and future prosperity of New England industry cannot be left entirely to those state officers who are employed for the purpose," Mr. Whittemore said. "These matters must become the serious objective of all those persons of good-will who make up the thinking people of New England. . . . There is danger . . . in accepting a pattern made out for the rest of the country. We have come out so badly in the race for Federal largess that we should cease marching in that parade and turn our attention to helping ourselves."

L. & N. to Launch Two New Streamliners by Summer

The Louisville & Nashville has completed plans to place in service two new streamlined trains, consisting of four sets of equipment, some time during the coming summer, or just as soon as delivery of the equipment is completed by the American Car and Foundry Company. Twenty coaches, 4 tavern-lounge cars and 4 diners are on order. All of this rolling stock is built primarily of strong aluminum alloys, of lightweight construction.

The complete schedules of the trains have not yet been definitely established, but one of the streamliners will operate over the Louisville & Nashville between Cincinnati, Ohio, and New Orleans, La., a distance of 922 miles, by way of Louisville, Ky., Nashville, Tenn., Birmingham, Ala., Montgomery, Mobile and the Mississippi Gulf Coast. The other will run between St. Louis, Mo., and Atlanta, Ga., a distance of 612 miles, by way of East St. Louis, Ill., Evansville, Ind., Nashville, Tenn., and Chattanooga, using the L. & N. between St. Louis and Nashville and the Nashville, Chattanooga & St. Louis between Nashville and Atlanta.

Each set of equipment will consist of five coaches, one diner and one tavern-lounge car, powered by one of the 2,000-hp. Diesel-electric locomotives. Each of the cars is 85 ft. in length. Sixteen of the coaches have a seating capacity of 60 persons each and the remaining four will seat 48 each. The total seating capacity of each train of seven cars is 288 passengers, exclusive of the lounge and tavern sections and the diner. The diners will have 48 seats and the tavern-lounge car 28 in the lounge section, and 24 in the tavern section.

The four-wheel trucks of the new equipment will have roller bearings and will be equipped with bolster roll stabilizers, shock absorbers and special pads to deaden sound and provide easier riding. The trucks, which have a wheel base of 8 ft. 10 in., will be equipped with high speed brakes. One axle on each truck will be equipped with a decelostat which will prevent wheel slide when brakes are applied.

Traveler interest in the new trains has been stimulated by the L. & N. by means of a nation-wide contest in which the public is invited to suggest names for the new trains and compete for first, second and third prizes of $1,000, $500 and $250, respectively. Prospective contestants are being invited to write to the railroad for official entry blanks, and are granted permission to enter as many names as they desire, the only stipulation being that, in explaining the reason for each name suggested, the explanation does not exceed 25 words.

Pere Marquette Trains Vets as Agents and Operators

The Pere Marquette has inaugurated a program designed to train war veterans and other young men for positions as station agents and operators at various points on the line. Instruction, which is being conducted at schools established at the P. M.'s Wyoming yards, at Grand Rapids, Mich., and at Saginaw, Mich., gives the trainees an intensive course on handling of train orders and general station work. Also stressed in the training program is the necessity of maintaining good relations with the road's customers and methods by which this can be accomplished. The program was decided upon as a result of a survey of the future needs for station personnel in which it was discovered that, due to the high average age of present station employees, large numbers of replacements would soon be required to overcome the effects of impending retirements.

Canadian Pacific Reopens Its Offices in Orient

Offices of the Canadian Pacific and Canadian Pacific Steamships at Hong Kong and Shanghai, taken over by the Japs during the war, are once more open for business. The Canadian Pacific has been represented in the Orient since 1886.

Club Meeting

William White, president of the D. L. & W., will address a special meeting of the Central Railway Club on Tuesday, April 9, in the ballroom of the Hotel Statler, Buffalo. His subject will be "Looking Ahead with the Railroads."

A list of current publications of interest to the transportation industry will be found on page 709.

With the Government Agencies

Wheeler Is Wary of Bulwinkle Bill

Doubts its passage without certain changes; Arnall to testify April 1

Senator Burton K. Wheeler, Montana Democrat, chairman of the Senate interstate commerce committee, which since March 20 has conducted hearings on the Bulwinkle ibll, H. R. 2536, declared this week that he would not support the measure as it now stands. Passage of the bill would exempt railroads and other carriers from anti-trust laws with respect to rate-making procedures and similar joint conferences.

Mr. Wheeler remarked that unless "certain legislation" and more "specific standards" were included in the bill, he doubted very much if it would pass the Senate or be approved by President Truman. He did not describe the types of "legislation" or "standards" to which he referred, but made it clear that he did not approve of the "blanket authority" given the Interstate Commerce Commission under the provisions of the bill as it now stands, and referred to "certain amendments" which he said would amount to a "compromise" by all concerned.

Arnall to Appear—The first vigorous testimony in opposition to the bill is scheduled to begin April 1, when Governor Ellis Arnall of Georgia is expected to appear. The state of Georgia currently is pressing in the Supreme Court a suit against 20 railroads in which it has charged them with conspiracy and violation of the anti-trust laws. Mr. Arnall has informed the committee that he expects to take five days in which to testify. Several members of the anti-trust division of the Department of Justice are expected to follow him on the stand.

Testimony by William E. Rosenbaum, a consulting traffic manager of St. Louis, Mo.; Jacob Aronson, vice-president, law, of the New York Central; and Walter S. Franklin, vice-president in charge of traffic of the Pennsylvania, highlighted the week's hearings, which attracted a large delegation of railroad men and shippers.

Although he expressed qualified approval of the bill, Mr. Rosenbaum charged the rate-making bureaus with several unorthodox practices which he claimed were particularly detrimental and unfair to shippers.

Criticizes Bureaus—He said that the bureaus are unethical in their operations in that a "fair deal" does not exist for all parties concerned, that the majority rule does not always prevail in the disposition of dockets and that no public statement is made after the bureaus reach a decision. He also pointed out that the voters on rates often have no personal interest in the particular rate in question and that the bureaus, in an attempt to equalize established markets, often tend to regulate commerce instead of moving it. He also charged that members of rate bureaus often are influenced by larger shippers who can give them more business than their smaller competitors.

Nevertheless the witness admitted that "things would be disorganized" if rate bureaus did not exist and advocated that all rate hearings should be conducted in the presence of an I. C. C. representative. He was reminded, however, tha the commission is now undermanned and could not possibly furnish the personnel to attend such conferences.

Mr. Aronson told the committee that "the I. C. C. is the public agency best equipped and best qualified to determine just which joint arrangements of the railroads are in the public interest and which would be against public interest."

Air Lines Have Immunity — He pointed out that under Section 5 of the Interstate Commerce Act, the commission is authorized to approve joint arrangements by railroads. He also told the committee that the Civil Aeronautics Act provides for the immunity of air carriers in respect to agreements on rates, schedules, equipment, etc., and that if the Civil Aeronautics Authority approves any joint negotiation, it therefore is not subject to anti-trust laws.

Mr. Aronson said that under the provisions of the Bulwinkle bill the I. C. C. has the right to approve or recommend changes in actions resulting from conferences between carriers and that passage of the measure would be the only way in which to "uphold the tradition the I. C. C. has developed since its inception." He added that both the commission and the Office of Defense Transportation have supported the conference practice and that without joint meetings between railroads, the nation's transportation system would "bog down" to a state of complete confusion.

Mr. Franklin, in answer to a criticism voiced by Senator Wheeler that shippers receive only a voting record and not a full account of what occurs at railroad conferences, replied that the present "secret ballot" form of voting is preferred by the railroads in order to avoid "ill will" among the shippers.

Anyone Can Complain—The Pennsylvania vice-president, declaring that it is absolutely necessary for the railroads to confer in order to carry out many of the decisions of the commission said that interested shippers can appear before a traffic committee hearing, at which railroads usually are present, but are prohibited from attending the executive sessions at which the railroads concerned vote by secret ballot upon the prevailing issue. He said that

(*Continued on page 695*)

Actuary Punctures Latimer's Estimates

Says his bigger benefits cost data and interpretations are not sound

The House committee on interstate and foreign commerce has received from Robert J. Myers, an actuary not associated with the Railroad Retirement Board, a report on actuarial cost estimates related to the proposed "liberalizing" amendments to the Railroad Retirement and Unemployment Insurance Acts (H. R. 1362) in which he questions the adequacy of the tax rates there provided on the basis of actuarial studies made by the board and presented to the committee by Murray W. Latimer, then the board's chairman.

This bill has been under consideration by the committee since the beginning of the present session of Congress, and extensive hearings were held in the period from January 31 to April 26, 1945, as reported in *Railway Age* at that time. A similar bill (S.293) is pending before the Senate interstate commerce committee, which has obtained an analysis of its provisions by one of the Senate's legislative counsel, as noted in *Railway Age* of January 12, page 164. The House ways and means committee meanwhile has received a report based on a general investigation of the Federal "social security" system, in which, as noted in the issue of February 9, the advantages of incorporating the railroad benefit and insurance set-up into the general system were strongly urged.

Cost Estimates—Mr. Myers' report deals in turn with cost estimates under the present railroad retirement system, undre the amendments thereto proposed in the bill, and under the present unemployment insurance system and the amendments to it provided in the bill. His conclusion is that, while the level cost of the present retirement system may vary between 8 and 14 per cent of payroll, the best single estimate that can be made at this time, allowing for reasonable future trends in payrolls, mortality, retirement rates, and other factors, is about 10½ per cent. This figure compares with the 7½ per cent prevailing under the present law and the 9 per cent provided in the bill and recommended by Mr. Latimer.

"If the policy is to provide immediately for the deficiency in the present tax schedule," Mr. Myers said, "an increase of 3 per cent would be required, rather than the 1½ per cent provided in the bill. Subsequently, a moderate adjustment would probably be necessary. On the other hand, a somewhat lower figure than 3 per cent might temporarily be selected, but such

(*Continued on page 695*)

Johnson Expects a Traffic "Avalanche"

He tells roads to order more cars and warns C. P. A. to provide materials

The Civilian Production Administration —successor to the War Production Board —has been told by Director J. Monroe Johnson of the Office of Defense Transportation that "something" must be done to expedite the manufacture of railroad cars on order, something that will insure their manufacturers receiving the materials necessary to complete them. This warning was contained in a letter directed last week to C. P. A. Administrator J. D. Small, in which Colonel Johnson pointed out that the "various things" that C. P. A. and other government agencies are undertaking to speed production and distribution of scarce materials "will not be accomplished unless the railroads can aid the program."

"If the materials are all allocated to other activities," said the O. D. T. director, "they will have materials at the source but not where they are needed.

Result of Short-sightedness—"It is hard indeed when the stresses of war have passed to secure recognition of the transportation difficulties which face us. It was a short-sighted policy during the war to allocate materials with priorities elsewhere over my protest that sufficient should be given to transportation. This condition would not now confront us had my advice and petitions then been heeded. It may not be too late, but it is late enough.

"Again I say, if we are to escape catastrophe to all of the programs, transportation must be equipped to do its duty and its part."

At the same time that Colonel Johnson expressed this view to the C. P. A., he wrote John J. Pelley, president of the Association of American Railroads, and J. M. Hood, president of the American Short Line Railroad Association, asking them to take up with their respective member roads the "matter of improvement of performance, without which improvement the railroads are going to find themselves presently very much more stretched and extended than at any time during the war." The O. D. T., he told the association presidents, would give its "sympathetic cooperation" in the execution of any program to that end, and as an example of what such cooperation would amount to he offered the letter to Mr. Small urging that more attention be given the provision of materials for the construction of cars.

Asks Positive Action—The O. D. T. director reminded the association presidents that he had already suggested certain steps the carriers might take to improve their performance (details of which were outlined in *Railway Age* of March 9, page 520), and he urged them to insist on "positive action" by individual railroad executives to accomplish the results specified. The seriousness of the present and prospective situation, Colonel Johnson said, is indicated by these facts:

"My latest report on turnaround time is for February, 1946, which is 16½ days. Frequently we approached 12 days during the war itself and often for months we were slightly over 13, which indicates that it takes three more days now to turn a car than during the war. One day of turnaround time is, I am informed, equal to 114,000 cars. Your line haul is free and easy. The delay occurs in interchanges in your yards and yard areas. Something must be done about it.

"The carloadings for the week ending March 9 were higher than '44 or '45. The box carloadings for the week ending March 2 are just equal to the fall peak of '45 and are equal to the high tide of the war. The refrigerator carloadings reached 37,200 cars the week ending March 9, the highest in the history of American railroads, and it is prognosticated that they will go still higher. Coal loadings for the week ending March 9 approached 13,000,000 tons, which is the highest in American history except for the fall of '43.

Much Traffic Ahead—"This extreme transportation volume exists even with reconversion held back by strikes. The strikes are now rapidly being settled. Steel and motors will go into production apparently at a very early date. Both their raw materials and their products must be transported in addition to the present volume.

"Additional coal has to be moved to the Great Lakes, where navigation opens now in a few days. This, as you know, will consume thousands and thousands of cars. Tidewater coal, too, will be greatly increased. There is promised another heavy crop of wheat. Preparations must be made for this movement, which will begin in June. The housing program will entail a tremendous volume of tonnage in lumber, cement, sand, gravel, brick, stone and steel. The highway program, of which we have heard so much, will consume a great amount of transportation.

"There are some cars on order already delayed. But even were those cars rolled out on the tracks today, they would be insufficient and would be only a small part of the cars we could get by an improvement in turnaround time. The turnaround time must be decreased. Railroad transportation is not in condition to move the avalanche that reconversion will now soon put on the rails. Every effort must be made to speed up the completion and delivery of the railroad cars now on order and to order quickly additional cars and have their delivery expedited."

Some additional suggestions for a program to "aid in the transportation picture" were incorporated in Colonel Johnson's letter to the association presidents. Bad order cars, now 4.2 per cent, he said, should be cut to the lowest attained during the war, 2.3 per cent. Repair and rehabilitation of locomotives awaiting heavy repairs should be accelerated to develop the greatest amount of power possible. Coal storage requirements should be met before the October traffic peak. Construction and maintenance programs should be "out of the way" before the fall traffic peak. A 13-day freight car turnaround time should be attained again. And the association presidents should "arrange to get progress reports from the executives of each railroad so that you may know who is lagging behind and needs to be prodded."

New Structures and Repairs Shut Down

C.P.A. allows maintenance and equipment building but halts construction

Beginning March 26, no new construction or repairs to existing structures may be undertaken, with certain exceptions, without specific authorization by the federal Civilian Production Administration, under the terms of that agency's Veterans' Emergency Housing Program Order 1, issued and effective on that date.

The order does not forbid or require authorization for the continuance of construction work already begun, if any of the materials which are to be an integral part of the structure had been incorporated in it on the site before March 26, and if the work was being carried on on that date. No further authorization is required for work where preference ratings already had been issued under the housing program Priorities Regulation 33. Demolition, excavation and similar site preparation do not constitute beginning construction, according to the order, and therefore are not prohibited.

Effect on Railway Work—Most types of railway work except construction of new buildings and improvement of existing buildings are exempted from the limitations imposed in the order. Its prohibitions, generally speaking, apply to "structures," and structures are defined in the order as, among other things, any building or pier, whether of a permanent or temporary nature, but not including "roads, streets, sidewalks, railroad or street or interurban or plant facility railway tracks or operating facilities (other than buildings), fences, silos, trailers, bridges, tunnels, gas, sewerage, water, central steam heating or telephone or telegraph communication services including power or utility lines and sewers, surface or underground mines, wells, dams, canals or drainage or irrigation ditches."

None of the order's limitations would apply, apparently, to the construction of any kind of railroad rolling stock equipment, as it not only exempts operating facilities but also "anything that is not attached to the land or to a structure as defined above, or any kind of equipment installed outside of and not attached to a building or other structure."

Except for certain exemptions set forth below, the restrictions of the order do apply to constructing, repairing, making additions or alterations (including alterations incidental to installing any kind of equipment), improving or converting structures, or installing or relocating fixtures or mechanical equipment in structures. "These terms include any kind of work on a structure which involves the putting up or putting together of processed materials, products, fixtures or mechanical equipment." Laying asphalt, tile or linoleum thus comes under the prohibitions in the order, but "repainting, repapering, and sanding floors, and greasing, overhauling, repairing or installing repair or replacement parts in existing mechanical equipment in all types of

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Court Affirms Its E. J. & E. Decision

Union needs employee authorization, but it may be "usage and custom"

After reconsideration, the Supreme Court of the United States has adhered to its prior five-to-four decision in the *Elgin, Joliet & Eastern* vs. *Burley* case, in which, as reported in *Railway Age* of June 16, 1945, page 1072, it held that a National Railroad Adjustment Board award in a case growing out of employee grievances does not deprive affected employees from the right to ordinary court processes to obtain judgment if it can be shown that such employees had not specifically authorized the union designated as the exclusive bargaining agent to act in their behalf for such purposes.

In the litigation under review by the court, the railroad had contended—with the support of various railway unions—that an award of the First Division of the adjustment board was a final adjudication of the claims, within the union's power to seek and the board's power to make, precluding judicial review. The federal district court so held, but it was reversed by the appellate court, which said that the question was one of fact whether the union had been authorized by the individual employees to negotiate and settle these particular claims, and that these employees individually were entitled to be represented in the proceedings in accordance with the rights of notice and appearance provided by law. These rights, the court held, are separate and distinct from any the designated collective bargaining agent may have to represent the collective interest of the employees.

Unions Concerned—This opinion of the appellate court was upheld by the Supreme Court, and that action resulted in apparent confusion as to how the adjustment board could function and in repeated expressions of concern, especially from union quarters, to the effect that the practical difficulties of compliance would seriously hamper, if not entirely obstruct, the operations of the board as contemplated in the Railway Labor Act. Despite the arguments on this ground addressed to the Supreme Court on rehearing, its majority, in an opinion by Justice Rutledge (who also expressed the majority view when the case was first considered), not only adhered to the views then expressed but, according to the dissenting opinion by Justice Frankfurter, added "new complexities"—"a series of hurdles which will be, and we assume were intended to be, almost impossible for an employee to clear."

Justice Frankfurter was the author of the dissenting opinion when the case was before the court in 1945, and Chief Justice Stone and Justices Roberts and Jackson then concurred in his views. The present dissent is subscribed to by the Chief Justice also, and by Justice Burton, the latter having been appointed to the court after Justice Roberts retired. Justice Jackson took no part in the proceedings on reargument.

It was Justice Frankfurter's view in 1945 that the result of the majority opinion allowing adjustment board settlements of grievances to be set aside is to obstruct the smooth working of the Railway Labor Act and undermine the confidence essential to negotiated adjustments, "the vital object" of that statute. Since litigation is authorized, "the far-reaching mischief of unsettling non-litigious modes of adjustment under the machinery of the Railway Labor Act largely remains," he declared. "When peaceful settlements between carriers and the brotherhoods are subject to such hazards, the carrier can hardly be expected to negotiate with a union whose authority is subject to constant challenge.

Dislocation of Settled Habits—"It was this dislocation of settled habits in adjusting railroad labor relations," the dissenting opinion continued, "which evoked a series of petitions for rehearing from the United States, the brotherhoods, the Railway Labor Executives' Association, and the organizations of industrial and craft unions. All the interests primarily concerned and best informed on these matters were aroused because for them the opinion destroyed the capacity of the Railway Labor Act to function, ignored the normal processes of the industry, and impaired the rights of collective bargaining generally. . . . Seldom if ever have the claims of policy been so marshalled on a single side of an issue requiring the interpretation of a statute which, at best, is sufficiently ambiguous to permit these considerations of policy to carry the day."

The majority opinion, however, did not indicate that designated bargaining agents could continue to negotiate grievance cases under adjustment board procedures. It required that the union have "sufficient evidence" of its authority to represent the employee for that purpose, but it did not define such evidence, taking the position that no all-inclusive rule can be formulated for all conceivable situations, and that no all-exclusive rule can be prescribed either.

"Custom and usage" may be as adequate a basis of authority as a more formal authorization for the union to represent the employee before the board, it said, adding that "it is altogether possible for the union to secure authority in these respects within well established rules relating to unincorporated organizations and their relations with their members, by appropriate provisions in their by-laws, constitution or other governing regulation, as well as by usage or custom. There was nothing to the contrary in our former opinion. We only ruled that on the showing made . . . we could not say as a matter of law that the disputed authority had been given."

Ruling Interpreted—If an adjustment board award is challenged in the courts, Justice Rutledge went on to say, one who would upset it carries the burden of showing it was wrong. The board's "action in adjusting an individual employee's grievance at the instance of the collective bargaining agent is entitled to presumptive weight. . . . There can be no presumption either that the union submitting the dispute would undertake to usurp the aggrieved employee's right to participate in the proceedings by other representation of his own choice, or that the board knowingly would act in disregard or violation of that right. . . . The contrary practice . . . has been

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Finds Three Roads at Fault in Accidents

I.C.C. again recommends that "adequate block system" be put in operation

As a result of investigations under the supervision of Commissioner Patterson of collisions, two of which involved passenger trains, on lines of the Illinois Central, Missouri-Kansas-Texas of Texas, and Chicago, Milwaukee, St. Paul & Pacific, the Interstate Commerce Commission has recommended that each road install on the line concerned an "adequate block system."

The Illinois Central accident, a rear end collision at Remsen, Iowa, on February 15, and that on the M-K-T line, a head-on collision near Royse City, Tex., on January 18, each occurred on a line where trains were operated by timetable and train orders, there being no block system in use. The Milwaukee accident, a rear end collision near New Lisbon, Wis., on February 5, occurred on a line where trains were operated by timetable and train orders with a manual block system for following movements only.

Collision at Remsen, Ia.—Remsen is a station on the I. C. line from Cherokee to Sioux City, being 35 miles east of the latter point. In the 30 days preceding the accident the average daily movement in the vicinity was 9.2 trains. The rules covering operations on single track required that following trains be spaced 10 min. apart, and it was not customary for trains making regularly scheduled stops to provide flag protection, although the rules provided that flagmen should provide full protection when likely to be overtaken by another train, dropping fusees at night or when the view is obscured by day.

No. 15, a 5-car westbound passenger train, stopped at Remsen at 4:31 p. m., having passed Extra 1225 West, a freight made up of engine, 10 cars and caboose, at Marcus, 8 miles east of Remsen. The train order signal at Marcus displayed proceed when each of these trains arrived at Marcus, and the operator, being engaged in handling mail and baggage, did not place it in stop position, to secure compliance with the 10-min. interval rule, for several minutes after No. 15 departed. Under the rules, when a train order signal displays proceed, authority is not required for a train to enter the main track, and about 5 min. after No. 15 left Marcus the freight followed it. Even though the signal was not promptly changed, the report pointed out, the rules also provide that train and enginemen are required to keep the required distance apart, and it said Extra 1225 proceeded from Marcus without observing this requirement.

A train order held by the freight's crew required that train to take the siding at Remsen to clear an overdue eastbound train. The east switch of the siding is 711 ft. east of the point where the accident occurred, and Extra 1225 should have stopped east of that switch to comply with the train order. When about 1 mile east of the switch, its speed was about 50 m. p. h., and the engineer made a 6-lb. brake reduction, followed about ¼ mile westward

by a further 8-lb. reduction, this in turn being soon increased to 22 lbs.

Engineer New in District — As the freight approached the east siding switch at Remsen the fireman discovered the passenger train standing at the station, and warned the engineer, who made an emergency brake application, but the freight's speed was about 30 m. p. h. when it struck the rear of the preceding train. The engineer had made only four trips as an engineer on the district involved, and said he underestimated the distance required for stopping when he first applied the brakes. The flagman opened the conductor's valve on the caboose when he saw the preceding train, but this was not soon enough to avert the accident.

The flagman of No. 15 had not dropped lighted fusees, although he knew the freight was following, because he thought they would not remain lighted when dropped from a moving train. No other flag protection was provided, as the crew "expected" the following train to comply with the spacing rule before leaving Marcus. When the approaching freight was seen, the engineer of No. 15 started his train forward in an attempt to avert a collision, and it was moving about 1 m. p. h. when struck. There were no fatalities, but 12 passengers, 2 postal clerks and 2 employees were injured. The force of the impact drove No. 15 ahead about 350 ft., and its rear car was telescoped about 15 ft. by the freight engine. This car, the freight engine, and the fifth to seventh cars of the freight (these three cars being the only equipment derailed) were badly damaged.

Commenting on this accident, the report observed that the Illinois Central has an automatic block system in operation from Fort Dodge, Iowa, to Tara, and from Lemars to Sioux City, the point of the accident being 94 miles west of Tara and 9.77 miles east of Lemars. "This accident probably would have been averted if the automatic block signal system had been in use in the territory involved," it said. "Under an adequate manual block system no train would be permitted to enter a block occupied by a preceding passenger train, as in the case here under investigation, and had such a system been in effect this accident could have been prevented." The precise cause of the collision, according to the report, was "failure of the railroad to provide adequate safeguards for the movement of the trains involved."

Royse City, Tex., Accident — The Texas accident was a head-on collision between a southbound 44-car freight, No. 281, and a northbound 48-car freight, No. 272. It occurred at 12:18 a. m. at a point 0.67 miles south of Royse City, a station on a single-track section of main line from Dallas (37 miles south) to Denison. The trains met at the north end of a 2-deg. curve to the right (for northbound trains) 1,338 ft. long, where the grade is 1.16 per cent descending northbound. The average daily movement in the vicinity in the 30-day period preceding January 18 was 12.2 trains.

The southbound train had received a train order giving it rights over No. 272 as far as Deny, a station 36 miles south of Royse City, but later, before it reached the latter point, received another train order requiring it to wait at Royse City until 12:15 a. m. for No. 272. The crew of No. 272 also received these orders, the effect of which was to require No. 272 to be in the clear on the siding at Royse City not later than 12:15 if it proceeded to that station. As No. 272 had not appeared at 12:15, the southbound train left that point at 12:16, and was moving about 20 m. p. h. when the reflection of the headlight of the opposing train was seen. An emergency brake application had reduced the speed to about 8 m. p. h. before the collision occurred.

When the members of the northbound crew received the order under which they were required to be in the clear at Royse City by 12:15, each member read it, the report stated, but they did not confer with each other as to its meaning. They understood, however, that, under the earlier order, they were required to clear the time of the opposing train, or provide flag protection. About 12:01 a. m., near Fate, a siding 3.8 miles south of Royse City, the northbound train was stopped by an emergency brake application caused by a pipe break on the forty-fifth car. "Instead of cutting out the brake on this car the conductor closed the angle cock on the front end of the forty-fifth car and bled off the brakes on this car, the rear three cars and the caboose." The train then started ahead, and passed Fate about 12:12.

Engineer Warned—The front brakeman and fireman of No. 272 said they warned the engineer at Fate that there was not sufficient time to reach Royse City to clear for No. 281, but the engineer told them No. 281 was required to wait there until 12:25. "These employees did not reread the train order, and no further action was taken until they saw the approaching train a few hundred feet distant." The conductor and the flagman, in the caboose, realized when their train passed Fate that it could not clear for No. 281 at Royse City in time, but they had no means of applying the brakes to stop the train because the angle cock at the front of the forty-fifth car was closed. The flagman displayed a lighted fusee from the side of the caboose in an effort to attract the attention of the employees on the engine.

When the opposing train was discovered, the engineer of No. 272 made an emergency brake application, and his train's speed was about 10 m. p. h. when the collision occurred. He was killed, and three other employees were injured. Both engines, three cars of the southbound train and one of the northbound, were derailed and damaged. The accident was caused, according to the commission's report, by an inferior train occupying the main track on the time of an opposing superior train. It "might have been prevented," it concluded, "if an adequate block system had been in use, since these opposing trains would not have been permitted to occupy the same block simultaneously."

The accident on the Milwaukee, in which a standing 42-car freight was struck in the rear by a 6-car passenger train, occurred at night, at 12:30 a.m. Both trains were running eastbound (by timetable direction) on the single-track line from Wausau, Wis., to New Lisbon, and the accident occurred 0.91 mile west of the latter point. From the west, leaving a long tangent, there is a 2-deg., 30-min. curve to the right 105 ft. to the point of the accident and 443 ft. eastward. At the time of the accident the manual block in use (for following movements only) extended from New Lisbon to Wisconsin Rapids, a distance of 49 miles. The average daily movement was 7.4 trains.

No. 256, the passenger, received a train order at Wisconsin Rapids authorizing it to proceed "prepared to stop short of train ahead," and advising it that the preceding freight, No. 272, had not then reached New Lisbon. Under this authority it left Wisconsin Rapids at 10:46 p.m.

Collision at New Lisbon, Wis.—The freight stopped about 11:20 p.m. at the point where the collision occurred, awaiting authority from the yardmaster at New Lisbon to enter a yard track to clear No. 256. The flagman went back about 500 ft. from the caboose to protect his train, and the caboose marker lights displayed red to the rear. About 12:28 the engineer, having received the proper authority, recalled the flagman by whistle signal. The flagman placed a lighted 10-min. fusee on the track and returned to his train, and was giving proceed signals when he saw the reflection of the headlight of the following train. He then ran back, and was giving stop signals with a red lantern at a point about 100 ft. west of the caboose when the passenger engine passed him.

No. 256 approached New Lisbon at about 50 m.p.h. in territory where the authorized speed was 55 m.p.h. When about 3,000 ft. west of the point of the accident a 12-lb. brake pipe reduction was made, and this was not released. No warning was seen until the fusee and marker lights of the preceding train were discovered, the latter being about 600 ft. ahead. An emergency brake application had reduced the speed of No. 256 to about 20 m.p.h. when the collision occurred. One employee was killed, and two passengers, two mail clerks and two employees were injured. The caboose and three rear cars of the freight were derailed, as was the passenger engine, and the caboose and one freight car were demolished.

Under the rules, according to the report, No. 272 was required to be in the clear at New Lisbon at 12:15 a.m., at which time the following train was scheduled to leave the next station stop to the west, but if it could not clear by that time it was required to furnish protection against the approaching train. "The block system in effect in this territory is inadequate," it went on to say. "Under the special instructions governing the blocking of following trains a passenger train may be permitted to enter a block that is occupied by a preceding train when authorized by train order. The train order authorizing No. 256, a passenger train, to enter the block involved . . . required this train to proceed within the block prepared to stop short of a train ahead at any point. . . . This order was not addressed to the crew of the preceding train. . . . Under an adequate manual block system a passenger train would not be permitted to enter an occupied block, and had such a system been in effect this accident could have been prevented."

The commission found, therefore, that

this collision was caused by "failure of the railroad to provide adequate safeguards for the movement of the trains involved."

Wheeler Is Wary of Bulwinkle Bill

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the conferences are "strictly a railroad responsibility" and that the I. C. C. is interested only in the outcome. He added that anyone can file a complaint with the commission after a decision on the action taken at the conferences has been submitted to it, and that the I. C. C. should be allowed to retain its jurisdiction to make changes in the interest of the carriers, shippers and general public.

"If the 'conference' method were to be replaced by a system requiring individual rate consultation by shippers iwth railroads," Mr. Franklin concluded, "no manufacturer could feel reasonably sure of retaining his markets and distribution outlets, and small manufacturers and shippers would find their bargaining power unequal to that of larger industries."

Another supporter of the bill, A. G. T. Moore, traffic manager of the Southern Pine Association, New Orleans, La., informed the committee that he sees the present suits against the railroads as "a threat to private enterprise and a threat by the government to take over the railroads." Chairman Wheeler assured the witness there was no danger of the latter occurring.

No Guide Now—R. L. Williams, president of the Chicago & North Western, testified that "the law provides no adequate guide as to the procedures railroads may employ in accomplishing their desirable results, despite the fact that the Interstate Commerce Act is clear as to the results to be achieved." He denied that "coercion" had been the purpose of the conferences and that they had been secret in nature.

"In the furtherance of the public interest, there is a great need for relief from the confusion, doubt and uncertainty inherent in the present situation in respect to how the railroads should carry out the expressed purposes of the national transportation policy established by Congress," he added, in urging passage of the Bulwinkle measure.

Also appearing in support of the bill, Harvey M. Johnson, chief traffic officer of the Missouri Pacific, emphasized that "railroad rate bureaus do not make rates, but provide a forum in which the carriers and shippers can work out necessary rate changes through joint consideration and discussion and then provide the administrative machinery by which such changes may be put into effect."

Present Methods Essential—Testifying that it was "absolutely impossible to operate without the present method of joint conferences" Mr. Johnson said that "in the West alone the railroads have established and maintained more than 20,000 separate classification ratings on commodities and groups," and that some groups comprise hundreds of different commodities. He said the rate structure is not static, but is being revised constantly to meet changing conditions.

C. McD. Davis, president of the Atlantic Coast Line, declared that "the very nature of the railroad business is such as to demand a substantial measure of cooperative action of one kind or another so that the legitimate requirements of commerce may be met in an efficient, orderly and satisfactory manner."

Nearly two score other witnesses, representing railroads, shippers and traffic organizations, also testified at the hearing last week in support of the proposed legislation. Their mutual sentiment was typically expressed by E. C. Widell, transportation director, Tennessee Manufacturers Association, Nashville, Tenn., who said that the shippers were "fighting for their lives and couldn't possibly get along without rate conferences."

Actuary Punctures Latimer's Estimates

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rates should not be considered as definitely sufficient on a permanent basis even in view of likely high levels of payrolls for the next few years. If too much expectancy of low costs is based on high payrolls, the system will eventually get into financial difficulties, or at least much higher taxes than now anticipated will have to be raised. If any smaller increase than 3 per cent is adopted, it should be clearly recognized that a further increase will probably be needed at some time in the future."

Explaining various equally effective methods of financing that might be adopted to bring the existing retirement system to a sound position, the actuary observed that "it is much more burdensome to have a sharp increase in taxes if an optimistic payroll estimate fails to materialize than to reduce the taxes slightly when a too pessimistic estimate has been made." If it is assumed that railroad payrolls will remain high for the next two decades but thereafter fall off to a much lower level, reflecting a declining volume of business for the industry, it would be preferable, he suggested, to amortize the initial retirement system deficit as rapidly as possible through a relatively high tax rate. Thus money could be obtained when available, rather than depending on unbearably high taxes on the reduced payroll later. "Even though the payroll were to decrease," he pointed out, "there would not be a corresponding immediate decrease in benefit payments, but rather there would be a rising trend for many years to come."

Now Gets Subsidy—On the suggestion that there might in the future be a government subsidy paid to the fund as part of a partially subsidized general social security system, Mr. Myers commented that much higher taxes would be required later if this subsidy never materialized. Moreover, he added, the railroad retirement system receives a government subsidy now, amounting to about 0.7 per cent, because the retirement account receives a guaranteed 3 per cent minimum interest, while the general social security funds, as well as the railroad unemployment insurance account, receive the current rate on government obligations, currently less than 2 per cent.

The report indicated "major technical errors" in retirement system cost estimates presented to the committee during the hearings by John T. Corbett, national legislative representative of the Brotherhood of Locomotive Engineers, and went on to show that Mr. Latimer's estimates, while mathematically tenable, rested on some questionable assumptions and had not always been interpreted acceptably, particularly with respect to the effect of higher payrolls. The resulting estimates were not regarded as entirely prudent, therefore, hence the difference between the bill's provision in this respect and that proposed by Mr. Myers.

The argument that larger payrolls should reduce the cost of the retirement system was not very ocnvincing to the author of the report. "Any increase in payroll due to higher wage rates (there has been an increase of about 35 per cent since the act was passed, and some quarters believe there will be another 10-15 per cent increase this year)," he said, "will tend to be followed eventually by a demand for higher benefits. This will occur for two reasons: First, retirement annuities based on earnings over a period of years will be smaller relative to most recent earnings (and also relative to the increased cost of living); and, second, the annuity formula gives proportionately less for higher wages."

Cost of More Liberal Pensions—Turning to the proposed amendments to the retirement system, Mr. Myers agreed that they probably can be financed at the 3½ per cent rate proposed in the bill, even though he remarked that the data on which Mr. Latimer's staff based its estimates are "in part obsolete and are not the best available. . . . Thus, the cost estimate for survivor benefits . . . is too high in regard to widow's current and child's benefits, but too low in regard to widow's and lump-sum benefits. . . . These understatements and overstatements fairly well offset each other so that the estimate is valid in the aggregate. However, these variations in both directions have been pointed out here to show that the cost estimates presented in the hearings were not conservative in all respects, but rather followed a middle course."

The net result of the actuarial analysis of the retirement features of the bill, then, was a finding that the level cost of all the benefits would be 14 per cent, not 12½ per cent as contemplated in the bill. It was indicated, however, that an immediate increase of the tax rate to 13½ per cent, rather than stepping it up over a period of years, might make it possible to maintain that rate for many years to come.

While the cost of the present unemployment insurance system is "most difficult to estimate," according to Mr. Myers, he agreed that in all likelihood the existing provision of 2.7 per cent for benefits and 0.3 per cent for administration (both paid entirely by the railroads) is "more than sufficient to support the present program" with the amendments, except the sickness benefits. However, he added, "in any program as unpredictable as unemployment insurance, there should continue to be an

ample margin of safety until sufficient experience through all phases of at least one complete business cycle has been accumulated."

Sickness Benefits—Dealing with the sickness benefit provisions of the bill, the actuary remarked that "Mr. Latimer has presented extensive calculations showing the cost of the sickness benefits and on the average determines them to be about 1 per cent of payroll. . . . The basic data used, in my opinion, are subject to considerable criticism. . . . It should be borne in mind that the general experience for any type of sickness or disability benefits has been for the cost in the early years to be relatively low, leading to an undue spirit of optimism among the administrators." The bill's provisions in this respect will cost from 1 to 1½ per cent of payroll, Mr. Myers estimated, and he added that, in his opinion, "if these benefits are added to the unemployment insurance system without any corresponding increase in taxes, there will not be an ample margin of safety; after a short period of years the fund might be depleted if there were to eb an extended depression and downward trend of railroad business coupled with unfavorable sickness experience."

Weighting the various factors involved, Mr. Myers concluded that the "most probable" cost estimate for the combined unemployment and sickness benefit provisions would be 3.6 per cent, as compared to the existing 2.7 per cent which is unchanged in the bill. "Since no increase is proposed in the bill," he said, "I do not believe the system as proposed in the bill will be actuarily sound." The 3.6 per cent rate suggested by him represents an increase of 33 1/3 per cent in the rate supported by the R R B., while Mr. Myers' cost estimate for the retirement program set up in the bill is an 11 per cent increase over Mr. Latimer's.

O. P. A. Authorizes Smaller Dining Car Portions

Railroad dining cars may serve smaller than their customary portions of oil and wheat products without reducing their prices, the Office of Price Administration has announced. The change became effective on March 22. The order provided that railroads that established the practice, during the 1943 base period, of reducing the price of meals when omitting items at the customer's request, should continue to make such reductions, and that patrons should be informed that full portions would be served if requested.

Motor Carrier Rate on Kansas Salt Modified

The Interstate Commerce Commission, in a second report on reconsideration, has reduced from 45 to 36 cents per 100 pounds, minimum 29,500 pounds, the minimum motor carrier rate on salt from points in Kansas to St. Louis, Mo. The truckers had sought approval of a minimum rate of 32 cents, which would, they contended, enable them to compete with the rail rate.

As reported in *Railway Age* of December 8, 1945, page 951, the case grew out of a complaint of the Morton Salt Company in which the commission then established new motor carrier rates on salt from Kansas origins to destinations in 9 surrounding states which were intended to modify the competitive relationships between rail and truck rates.

Concurring to the extent that the majority "affords some relief," Commissioner Splawn, joined by Commissioners Lee, Aitchison and Mahaffie, contended that the "effect of the prescribed adjustment of minimum rates is to deprive the motor carriers of participation in a much needed class of traffic while their rail competitors are permitted to continue, free from any minimum restriction, a far lower basis of rates designed to meet the keen competition of salt from producing areas other than Kansas."

Seaway Clears First Hurdle

The Senate foreign relations subcommittee has voted 3-to-1 to recommend that the full committee should act favorably on Senate Joint Resolution 104, which would approve an agreement between the United States and Canada for development of the St. Lawrence seaway and power project, thus obviating the need for a treaty, approval of which would require a two-thirds vote by the Senate. This action follows extensive hearings on the proposal, the substance of which has been reported in recent issues of *Railway Age*. It is understood that the subcommittee's formal report to the full committee will not be made until the record of these hearings has been printed.

Santa Fe to Comply with I. C. C. Order Affecting Signals

Upon an agreement by the Atchison, Topeka & Santa Fe to install a block signal system for operation of trains against the current of traffic on its double-track lines, the Interstate Commerce Commission by Commissioner Patterson has issued an order in No. 28750 Sub No. 21 requiring the road to provide such a system, conforming to the commission's regulations, by June 1. The road's agreement was filed in reply to an order to show cause why it should not be required to make such an installation, which was served on it, as noted in *Railway Age* of February 2, page 297, following a rear-end collision near Cheto, Ariz.

Appropriation Bills Progress

Congressional action has been completed on the 1947 independent offices appropriation bill (H. R. 5201), which, among other things, provides $8,075,000 for the general expenses of the Interstate Commerce Commission. This sum represents a compromise between the amounts originally approved by the House and the Senate, $8,000,000 and $8,130,000, respectively, and is a decrease of $155,000 below the amount recommended by the Bureau of the Budget. Locomotive inspection work, printing and binding and mail handling charges are separately provided for in the bill.

Whereas the Senate, in increasing the amount provided for the I. C. C. in the bill passed by the House, had stipulated that $100,000 of the increase should be used for the work of the Bureau of Service, the importance of which had been stressed in the committee hearings by Commissioner J. Monroe Johnson, director of the Office of Defense Transportation, the compromise measure provides $75,000 more than the House version for the Bureau of Service but none for other purposes.

The independent offices appropriation bill also provides $267,838,792 for the Public Roads Administration, including $25,000,000 for grade crossing elimination and protection work. The two houses were in agreement on this figure.

The House on March 27 passed the so-called second deficiency appropriation bill, 1946, H. R. 5890. As reported by the appropriations committee this bill, in addition to provisions for increased pay costs of employees in various departments and agencies, included among other items an additional appropriation of $37,500 for arbitration, emergency and panel boards under the National Mediation Board, and an allocation to the Railroad Retirement Board of $185,000 ($57,000 less than was recommended by the Bureau of the Budget) for additional salaries ($140,000) and other expenses.

Court Affirms Its E. J. & E. Decision

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due without question, we think, to the board's erroneous conception, accepted generally also by the unions and strongly argued in this case especially upon the reargument, that the act itself, notwithstanding the provisions of section 3 first (j) and the proviso to section 2 fourth, confers exclusive statutory power upon the collective agent to deal with the carrier concerning individual grievances and to represent the aggrieved employee in board proceedings."

Continuing, the majority view was that "there cannot be many instances in which an aggrieved employee will not have knowledge or notice that negotiations affecting his claim are being conducted or, if they fail, that proceedings are pending before the board to dispose of it. Although under our ruling his rights to have voice in the settlement are preserved, . . . we did not rule, and there is no basis for assuming we did, that an employee can stand by with knowledge or notice of what is going on with reference to his claim, either between the carrier and the union on the property, or before the board on their submission, allow matters to be threshed out to a conclusion by one method or the other, and then come in for the first time to assert his individual rights. No such ruling was necessary for their preservation and none was intended."

Frankfurter Sees "Mischiefs"—Justice Frankfurter did not share this view of the majority opinion, however, but declared that its "mischiefs are real and potent." The court "adheres" to its decision, he explained, but "as we read the court's interpretation of its original opinion, it 'adheres' to it by extracting from it almost all of its vitality. We say 'almost' because the one thing that remains is the conclusion that the determination by the adjustment board that the

recognized union represented its members is allowed to be reopened not before the board but anew in the courts, state or federal, in an independent suit by a member of the union against the carrier."

The dissenting justice's appraisal of the situation was based on his view that "Congress has made a departure in the Railway Labor Act from the normal availability of judicial remedies, and we ought not to read the new law through the spectacles of the old remedies," coupled with this comment on the majority interpretation of its opinion: "If the custom of the railroad industry rather than the conventional law of agency is to govern, clearly the expert, centralized board is the appropriate tribunal for ascertaining whether the authorized bargaining agency is authorized to represent the grievances of its members before the board, and not the multitudinous courts throughout the country with their varying understanding and varying judgments. The gloss which the court now puts on its previous opinion in effect recognizes that this is so by the extent to which it hobbles the right to secure the revision of the board's determination which it abstractly bestows. Thereby it undermines any justification for the notion that Congress intended to open the courts for a redetermination of the issue of authorization. . . . The whole course and current of the railway trade union relationships imply that the interest of the individual member as to issues arising under the collective agreement is entrusted to his chosen representative."

The prior majority opinion, now "adhered to," according to Justice Frankfurter, "threatened not only the efficacy of the Railway Labor Act, but generally undermined the basis for all collective bargaining in regard to grievances. It is fair to say that the decision created havoc in the railroad world, for a proper adjustment of industrial relations on the railroads, as the whole course of railroad history shows, is absolutely dependent on appropriate machinery and process of adjustment. The machinery set in motion by the act was stopped by the opinion. Immediately after the court's decision of last term, the two divisions of the adjustment board dealing with 94 per cent of the cases under normal circumstances completely shut down. And when they were reopened, they functioned at only a fraction of their normal activity. These boards are not operating in a vacuum. Their function is to settle by peaceful means employee-employer disputes that would otherwise be settled by a show of power on each side. The brotherhoods point to the dangers cumulating in the unadjusted grievances. The Railway Labor Act becomes as ineffective as it was prior to the 1934 amendments; and such a result might well have been anticipated from the destruction of a system that had become customary."

February Employment

Railroad employment decreased 1.95 per cent—from 1,392,535 to 1,365,415—during the one-month period from mid-January, 1946, to mid-February, and the February total was 3.40 per cent below the total for February, 1945, according to the preliminary summary prepared by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The index number, based on the 1935-39 average, was 137.1 for February, as compared with 141.9 for the previous month and 142.0 for February, 1945.

February employment was above that of the corresponding month in 1945 in two groups, the increases being 1.67 per cent in executives, officials and staff assistants and 3.85 per cent in transportation, other than train, engine and yard. The decline in the other groups ranged from 0.86 per cent in professional, clerical and general to 11.57 per cent in the maintenance of way and structures category.

As compared with the previous month, there were declines in February in six employment groups, the range being from 0.18 per cent for yardmasters, switch-tenders and hostlers to 6.21 per cent for maintenance of way and structures. The only increase was 0.25 per cent in transportation, other than train, engine and yard.

Frisco Truck Subsidiary Cleared of Illegal Service Charge

The Interstate Commerce Commission, in a report on oral argument, has ruled that the Frisco Transportation Company, a subsidiary of the St. Louis-San Francisco, had not conducted unauthorized operation as a direct motor carrier service. The proceeding, No. MC-C-293, was the subject of a prior report by Division 5, reported in *Railway Age* of February 24, 1945, page 392, in which it was held that Transportation had not acquired the right to provide direct service to the public.

The full commission said that "Division 5 erred in its finding that the performance of direct motor carrier service by the Transportation Company has been and is unauthorized. The substantial issue in this proceeding is whether the company, by performing an independent motor carrier service, is violating the terms of the certificates which were issued to it . . . and there is nothing in the certificates which were under consideration in the prior report prohibiting the performance by the Transportation Company of a direct motor carrier common carrier service independent of the services of the railway." Commissioner Mahaffie concurred in the result, while Commissioner Aitchison did not participate in the disposition of the proceeding.

Texas-New Jersey Natural Gas Pipeline Project Pushed

The Trans-Continental Gas Pipe Line Company of Longview, Tex., has applied to the Federal Power Commission for authority either (1) to convert the war-built and now "surplus" pipelines known as "Big Inch" and "Little Big Inch" to the transportation of natural gas from the Southwest to Pennsylvania, New Jersey and New York, or (2) to construct a pipeline system substantially parallel to those lines for the same purpose.

The company informed the commission that it had offered the War Assets Corporation $40,000,000 for three existing pipe lines, the two named above and the so-called Southwest Emergency line in Texas, not including pumping stations, and that it contemplated the expenditure of a comparable amount to convert those lines for gas transportation. If that acquisition is not approved, the alternate plan, according to the application, is to build a 26-in. gas pipeline from Corpus Christi, Tex., to Linden, N. J., at a cost of $80,000,000. Such a line, it said, would have a full load capacity of 300 million cubic feet per day.

The gas so delivered would be sold to distributing companies in the terminal area, for use to enrich artificial gas now made by them, and for other purposes. The applicant asserted that it has or is negotiating for options for the purchase of sufficient gas to supply the maximum capacity of the line for a 30-year period.

New Structures and Repairs Shut Down

(*Continued from page 692*)

structures, where no change in the structure is made, are not covered by the order."

Fixtures Defined—The term "fixtures or mechanical equipment" as used in the restrictions just set forth applies to plumbing, heating, lighting and ventilating equipment, partitions, counters, shelving, and the like. It does not include such things as machine tools, elevators, laboratory or control equipment, or power generating or transmitting equipment, such as boilers, generators and transformers (except where the purpose of such power equipment is primarily to heat or light the building in which it is installed).

So-called small jobs are exempted from the limitations of the order. For such industries as manufacturing, lumbering, public utilities and transportation the exemption applies to construction or alterations, the full cost of which is under $15,000. This phase of the order covers any structure used for or in connection with a railroad, airport, bus or truck terminal, or pier. The cost, for the purposes of the exemption, includes labor, new fixtures, mechanical equipment and materials and contractors' fees, but does not include used fixtures or materials, or any machinery or equipment installed in but not a part of the structure, such as machine tools, boilers, generators and similar apparatus.

"For the purpose of this exemption," the order goes on to say, "a related series of operations which are performed at or about the same time or as part of a single plan or program constitutes a single job. No job which would ordinarily be done as a single piece of work may be sub-divided for the purpose of coming within this exemption. When a building or part of a building is converted from one purpose to another, all work incidental to and done in connection with the conversion must be counted as one job. So also if a building is being renovated, improved or modernized over an extended period, all work done in connection with the modernization (other than work done before March 26, 1946) must be considered as part of one job, even though separate contracts are let for the different parts of the work."

Maintenance Work Exempt—The order also provides that its prohibitions do not apply to maintenance and repair work in industrial, utility and transportation

buildings and structures, so long as "maintenance" is restricted to "the minimum upkeep necessary to keep a structure in sound working condition," and "repair" is confined to "restoration of a structure to sound working condition when the structure has been rendered unsafe or unfit for service by wear and tear, damage, failure of parts, or the like." But such maintenance or repair is not meant to include replacement of material that is still usable with material that is better in kind, quality or design, nor any such work, even if otherwise exempted, if it is capitalized for tax purposes.

Other sections of the order provide for C. P. A. authorization for construction otherwise prohibited. Except for housing and farm buildings, applications are handled by the appropriate construction field office of the C. P. A. That agency on March 26 announced that regional directors and district managers had been appointed to "screen" construction applications in 71 cities throughout the country.

The purpose of the order, the C. P. A. pointed out in an accompanying statement, is to "save materials desperately needed for veterans' housing," and its restrictions are said to be based on "a thorough study of the housing emergency and the present insufficiency of building materials." John D. Small, C. P. A. administrator, said that "we want the public to realize that even under the unavoidable restrictions of this regulation, certain necessary new construction activities will be permitted to go forward side by side with veterans' housing."

Small Appraises Situation—Mr. Small, testifying before the Senate committee on banking and currency on the day this order was issued, asserted that there is not in sight a sufficient supply of building materials to support a construction program of the size visualized last fall. Not only must emergency measures be undertaken to increase the production of such materials, he said, but some $1½ or $2 billions of new construction must be cut out of the program for the next 12 months.

Assuming that such a cut is effected, assuming that the housing construction program advanced by the National Housing Agency is carried out, and assuming that the limitation order of March 26 will be revoked at the end of 1946, a schedule was submitted by Mr. Small of estimated new construction activity (on the basis of value-in-place in dollars), and repair and maintenance, for 1946 and 1947 by quarters for the principal industrial categories. For the four quarters of 1946 he estimated new construction by railroads as $65, $70, $85 and $60 million, respectively, a total of $280 million. For the same periods he estimated maintenance and repair work by railroads as $250, $325, $425 and $300 million, respectively, a total of $1,300 million. For the four quarters of 1947 the corresponding figures were, for new work, $70, $85, $110 and $85 million, a total of $350 million, and for repairs and maintenance, $250, $355, $480 and $350 million, a total of $1,450 million.

On March 27 Mr. Small announced that a new Construction Bureau has been set up in the C. P. A. to administer the housing program order. This bureau is a different organization, he emphasized from the former Construction Division, which is now known as the Building Materials Division. The latter division is responsible for efforts to stimulate production of all building materials except lumber, which is the responsibility of the Forest Products Division. The new bureau, of which Clarence A. Woodruff is acting director, will pass upon appeals made from decisions in field offices on construction permit applications, and will be expected to establish standards guiding such decisions. It also will estimate the availability of construction materials and the volume of construction that can be undertaken with such resources, according to the C. P. A. statement.

I. C. C. Orders Meat Rates from South Reduced

The Interstate Commerce Commission has ruled in the No. 29043 proceedings that the rates on fresh meats and packinghouse products, in straight or mixed carloads, are unreasonable and unduly prejudicial from points in Southern territory to destinations in Eastern Trunk-line and New England territories, and has prescribed a reduction in rates from the South approximately to the level of those from the Midwest to Official territory. The new rates are to become effective June 14.

Chairman Barnard, concurring in part, agreed with the report of the majority to the extent that the reduction narrows the spread between the rates from the South to the North and those which generally prevail in the destination territory, but argued that such action falls short of according to the South the full measure of relief which it is entitled to. He was joined in his expression by Commissioner Alldredge.

Commissioners Porter and Patterson, dissenting, said they could see no justification for the reduction to the extent proposed by the majority. Commissioner Aitchison did not participate.

The report pointed out that the northbound movement of the commodities concerned has been negligible, the southbound movement being about ten times greater than the northbound.

Shipping Agencies Want Rail Rates Investigated

The Interstate Commerce Commission has been asked, as a matter of "extreme urgency to the government", to institute on its own motion an investigation of the "lawfulness and reasonableness of existing railroad rates and practices in so far as the same are competitive with domestic water carriers." The petition to that effect, filed by the U. S. Maritime Commission and War Shipping Administration, was supported by letters from Secretary of War Patterson, Secretary of the Navy Forrestal, and Secretary of Commerce Wallace.

Prior to the cessation of intercoastal and coastwise vessel operation at the beginning of the war, the "general economic condition of the water lines was unsound," according to the petition. With the actual or impending resumption of such operation following the end of hostilities, the commission and the W. S. A., it said, "have become fully aware of the destructive impact of water competitive rail rates upon the operations of domestic shipping." Their studies lead these agencies to the conclusion, they added, that "successful and profitable operation of domestic shipping in the post-war period is not possible, even under the most favorable traffic conditions, unless readjustments are made in competitive rail rates to permit vitally necessary readjustments in water rates."

The "unjust and unreasonable" nature of rail rates competitive with water services, according to the petition, allegedly is shown in the following respects: they are lower in many instances than necessary to meet competition; in some instances they are not reasonably compensatory; fourth section relief, granted in some instances, is no longer justified; railroad divisions of joint rates are excessive and water carrier divisions inadequate; the purposes of the national transportation policy, to foster sound conditions among the several types of carriers, are frustrated; an unjust burden is put upon non-competitive traffic, because of the rates maintained by the railroads in competition with water carriers; and these competitive rates subject particular ports, shippers and localities to undue discrimination.

As a result of these "subnormal" rail rates, the petition said further, the full utilization of water transportation is prevented and its "inherent advantages" are denied to the public. Unless early remedial action is taken concerning the competitive rates, it declared, adverse effect on the disposal of war-built merchant vessels under the so-called ship sales law is likely, in addition to an adverse effect on the national defense and the economy of port and coastal areas, including the Panama Canal.

"It has recently been publicly stated that the railroads plan a general increase in their rates to cover increased operating costs," the petitioners continued, expressing the opinion that such an increase would be "palpably unfair" while competitive rates that "injure our merchant marine" remain in effect. Domestic water transportation, they said, is "now faced with a serious threat of annihilation," as a result of rail rate competition. "The volume of tonnage handled by the water carriers is but a small fraction of the tonnage handled by the railroads. To the latter, with their huge reserves of non-competitive traffic, the gain or loss of such tonnage cannot be very significant, but to the water carriers it is a matter of life or death."

One possible result of this condition, according to the petition, is the threat that operation of the ship lines will be so unattractive to private capital that subsidized government ownership and operation for national defense purposes may supplant the traditional private enterprise system in this field, "with resulting enormous costs to the U. S. Treasury."

Other threats seen in the existence of these rates, the government agencies said, are the danger that shippers will be deprived of the "untold benefits resulting from wholesome competition which will endure only so long as transportation by water is maintained," and that reconversion will be delayed, since the railroads "are presently, and for some time will be, unable to handle adequately the movement of

critical items, thereby aggravating the present scarcity of goods and increasing the economic pressures of an inflation tendency."

O. P. A. Raises Ceiling Price on Ties Five Cents

The Office of Price Administration, in an effort to encourage production of railroad cross ties in four "zones" affected by increased costs resulting from a recent wage increase of 10 cents per hour, has announced a five cent raise in the ceiling prices of the five grades of ties in common use, effective March 27.

The O. P. A. said that the increases, which embrace most of the tie producing areas of the eastern, middle western and Great Lakes states, will re-establish normal differentials between production zones affected by the increase granted the balance of the cross-tie industry last year, as reported in *Railway Age*, July 21, 1945, page 108.

Equipment and Supplies

SIGNALING

The Electro-Motive Division of the General Motors Corporation has ordered 76 sets of intermittent inductive train control equipment from the General Railway Signal Company for installation on Diesel-electric freight locomotives. These sets will be utilized as follows: 54 for the Southern and the Alabama Great Southern (a subsidiary of the Southern), 20 for the Alton, and 2 for demonstration purposes.

The New York, Chicago & St. Louis has ordered materials from the Union Switch & Signal Co. to extend their Hadley-South Whitley C.T.C. installation to Claypool, Ind. A 15-ft. Type C control machine will be installed in a new office building to be constructed at Ft. Wayne, Ind. The machine will have facilities to control the single-track territory on the Chicago division between Hadley, Ind., and Van Loon, a distance of 121 miles. The field work will be performed by the construction forces of the railroad.

The St. Louis-San Francisco has placed an order with the Union Switch & Signal Co. for signal material required for the installation of centralized traffic control between Springfield, Mo., and Sleeper, a territory of 54 miles of single track and 10 miles double track. A Style C control machine will be installed at Springfield to control this territory and also to control the existing C.T.C. system between Sleeper, Mo., and Newburg, by carrier. The order includes, besides the control machine and the coding units, Style H-2 searchlight high and dwarf signals, Style M-2 and M-22A electric switch layouts, Style SL-6A electric lock layouts, emergency manual control units, and required relays, rectifiers, transformers and housings. The installation work will be handled by the construction forces of the railroad.

Supply Trade

The Washington, D. C., office and foreign department of the **Evans Products Company** has been moved to 1608 Twentieth Street, N. W.

The **Whiting Corporation** of Harvey, Ill., has moved its Pittsburgh, Pa., sales office to new and larger quarters in the Pitt Bank Building at Fifth and Liberty Avenues.

A. W. Conrad has returned to his former position in the Chicago office of the **Copperweld Steel Company's** Glassport, Pa., division, after serving two and a half years in the armed forces.

E. A. Watson, until recently production manager at the Buffalo, N. Y., plant of the **American Car & Foundry Co.,** has been appointed assistant engineer in the company's improvement division, with headquarters in New York.

Hal Bergstrom was designated erroneously as "head of transportation design for **Raymond Loewy Associates"** in the item in the *Railway Age* of March 16, page 592. This position has been held by Mr. Loewy's partner, **A. Baker Barnhart,** since 1934. Mr. Bergstrom was a member of the department's staff.

Edward B. Maire has been appointed manager of the Chicago factory branch of the **General Controls Company** of Glendale, Calif. Mr. Maire will serve users of automatic pressure, temperature and flow controls in Illinois, Indiana, Wisconsin, Iowa, Minnesota, North Dakota and South Dakota.

Malcolm Wolcott, who recently was discharged from the army, has joined the sales staff of the **Formica Insulation Company,** Cincinnati, Ohio. He will work in the Rochester, N. Y., territory under his father, E. M. Wolcott, Rochester representative of the company for the past 30 years.

Paul W. Zumbrook has been appointed manager of domestic lubricating oil sales of the **Sinclair Refining Company** with offices at the company's headquarters in New York. Mr. Zumbrook has been lubricating sales manager for the central district with headquarters in Chicago since 1936.

Edgar R. Stanford has been appointed wholesale manager of distributor and railway sales for the **Gordon Lubricating Company** of Carnegie, Pa. Previously, Mr. Stanford was employed as a machinist for the Atchison, Topeka & Santa Fe; railroad service engineer for the Superheater Company; field representative for the Valve Product Corporation; and manager of railway sales for the Gulf Oil Corporation.

Allen Aikens, sales representative of the Dockson Corporation of Detroit, Mich., has assumed active management of his own manufacturing concern, the **Red Head Products Company** of Royal Oak, Mich. This company, formerly known as the Rich Red Head Rivet Set division of the Mott Steel Products Corporation, recently was purchased and reorganized by Mr. Aikens and moved to new quarters.

John S. Leslie, vice-president and general manager of the **Leslie Co.,** Lyndhurst, N. J., has been elected president to succeed **S. Inglis Leslie,** who becomes chairman of the board.

John Leslie was graduated from Cornell University with the degree of mechanical

John S. Leslie

engineer, and from the Babson Institute with a degree in business administration. He joined the Leslie organization in 1936. He was elected vice-president in 1940 and assigned the additional function and title of general manager in 1943. He is a member of the American Society of Mechanical Engineers and the Society of Naval Engineers, and an associate member of the Society of Naval Architects and Marine Engineers.

S. Inglis Leslie started in the pressure regulator business in 1900. He was elected secretary and treasurer of the Leslie Company in 1905 and president in 1926. He is on the board of trustees of the Manufacturers Association of New Jersey, a

S. Inglis Leslie

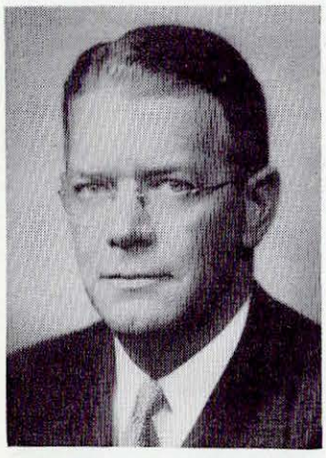
director of New Jersey Manufacturers Casualty Insurance Co. and the New Jersey Manufacturers Association Hospitals, Inc., of Trenton, N. J.

Daniel Adamson & Co., Ltd., of Dukinfield, Cheshire, England, will manufacture the complete heat transfer equip-

ment line of the Alco Products division of the **American Locomotive Company.** Under the terms of the affiliation, the English company will establish a division to produce Alco Products equipment. The Alco Products division of American Locomotive will do all engineering and designing.

Tom R. King, whose appointment as manager of western railroad sales of the **Hewitt Rubber Corporation,** with headquarters at Chicago, was reported in the *Railway Age* of March 9, was born at Chicago on June 18, 1906, and received his higher education at the University of Michigan. He began his business career shortly after graduating from college in 1927, becoming connected with the Commonwealth Edison Company, Chicago. In 1929 he joined the staff of **The O. K. Company,** a railroad and industrial supply firm, Chicago, of which his father, the late W. Jerry King, was the head. Tom King held various positions with the O. K. organization until the death of his father (*Railway Age* of March 2), at which time he was promoted to his new position with Hewitt, and also assumed the presidency of The O. K. Company.

R. A. Williams, vice-president of sales, has been elected a director of the **American Car & Foundry Co.** to succeed W. L. Stancliffe, who recently resigned from that post. Mr. Williams also is executive vice-



R. A. Williams

president and a director of the American Car & Foundry Export Co., having direct supervision of sales, subsidiary companies, and foreign representatives. He has been associated with the sales and engineering staffs of American Car & Foundry since 1924.

E. T. Landgraff has been appointed a member of the sales staff of the **Chiksan Company** of Brea, Calif. Mr. Landgraff's headquarters will be in New York. He has been connected with the Oil Well Engineering Company for the past 20 years, the last three as American representative. In addition to sales to the domestic market in the New York territory, he will serve as eastern representative of the Chiksan Export Company. **Roy W. Sexton,** who has been a member of the Chiksan sales staff for the past three years, will be associated with Mr. Landgraff in the New York office.

OBITUARY

Edward J. Finkbeiner, a vice-president of the American Car & Foundry Co., died March 23. He was 60 years of age. Mr. Finkbeiner joined the company in July, 1904, as a clerk in the auditing department at the Detroit, Mich., plant. He was transferred to the operating department in New York as general supervisor in the production department in May, 1922, and

Edward J. Finkbeiner

subsequently was associated with the president's office. He was a member of the Railroad-Machinery Club of New York, the New York Railroad Club and the Century Masonic Lodge.

Bengt E. Folke, mechanical engineer and a director of the Nathan Manufacturing Company, died March 25. He was 42 years of age.

Frank Parker, chairman of the board of Iron & Steel Products, Inc., whose death on March 17 was reported in the *Railway Age* of March 23, was born at Chicago on January 9, 1890. He received his higher education at the Armour Institute of Technology, Chicago, which included eight years of special study in engineering and metallurgical chemistry. He began his business career in 1905, when he joined the Republic Iron & Steel Co., serving with that organization until 1916, when he became president of the Railway Car & Equipment Corp. In 1930 Mr. Parker founded Iron & Steel Products, Inc., and was its president until May, 1943, when he was elected to the position he held at the time of his death.

Construction

NEW YORK, NEW HAVEN & HARTFORD.—This railroad has authorized the following projects: Construction of a sub-station at Cedar Hill, New Haven, Conn., to provide a connection for three phase, 60 cycle power from the United Illuminating Company, at estimated cost of $60,000; extension of the boiler house at Charles Street, Providence, R. I., the installation of boiler and appurtenances, and the construction of an 8-in. steam line to the passenger station, at estimated cost of $125,000; and construction of a transformer platform with fence enclosure at Boston, Mass., and the installation of transformers, switches, breakers, interlockers and feeder switches, at estimated cost of $59,000. The railroad also has awarded a contract for an extension to its freight house at Harlem River, N. Y., at estimated cost of $170,000, to the Elmhurst Construction Company.

ELGIN, JOLIET & EASTERN.—This road has awarded a contract, amounting to $33,000 to G. A. Johnson & Son, Chicago, for the construction of a 28-ft. extension to its office building in the yards at Gary, Ind. The extension consists of two stories and basement, with brick walls, steel frame and reinforced concrete floors. Another contract has been awarded to the Powers-Thompson Construction Company, Joliet, Ill., for construction of a concrete drop table pit in the enginehouse at Joliet. This project will cost $38,000.

Financial

CHESAPEAKE & OHIO.—*Annual Report.*—The necessity for using every possible means to bring railroad revenue and expenses more nearly into line with the rising costs of materials and supplies and wages is stressed by Carl E. Newton, president, in the Chesapeake & Ohio's annual report. "Two wage increases aggregating 28 per cent have been absorbed since the war began and a third is now being demanded. Freight rates are the same as they were before the war. Even though the excess profits tax has been removed, taxes are still far above the pre-war level. To sustain railroad earnings, rate-making authorities will undoubtedly recognize these increased costs of transportation." The Chesapeake & Ohio was reported to be attacking the problem of the high costs of materials and supplies by a wider application of the principles of competitive bidding in the field of such purchases, and the road believes that the situation can be substantially improved, even though effective competition is not always obtainable on some patented articles.

The report states that movement of coal and coke over the Chesapeake & Ohio, which accounted for about 76 per cent of total tonnage and 63 per cent of freight revenues in 1945, is expected to continue at a high-rate again this year, with heavy coastwise and lake shipments supplemented by exports to coal-starved nations abroad. New and enlarged manufacturing plants along the railroad should result in a permanent industrial output, and the merchandise traffic is expected to hold up well, while the ending of troop movements through Newport News, Va., will bring a substantial decline in passenger revenue.

The report shows net income in 1945 amounted to $16,379,847 or $2.14 per common share, the lowest for many years, due principally to the accelerated write-off of capital investments in war facilities. In the preceding year, net income was $27,340,995, or $3.57 per common share. As a result of the amortization of defense facilities, which amounted to $48,590,192 in 1945, the company accruals for federal income,

surtax, and excess profits taxes were a net credit of $8,853,399, compared with accruals of $38,838,190 in 1944. The amortization charges relieved the C. & O. of any excess profits tax liability for 1945, and entitle the company to a refund or the carry-back to 1943 of the unused excess profits tax credit for 1945 of about $5,595,608. That part of the 1945 amortization applicable to the years 1941-44 enables the company to claim refunds of $11,209,729 of excess profits taxes paid in those years.

The company reported a net debt reduction of $9,387,000 in 1945, bringing debt reduction from 1938 to 1945 to $32,934,000.

DELAWARE & HUDSON.—*Annual Report.*—Operating revenues of the Delaware & Hudson Railroad Company in 1945 amounted to $45,943,412, a decrease of $4,541,305 or 9 per cent under 1944. Revenue from transportation of anthracite decreased $1,343,994, or 13.05 per cent; revenue from transportation of bituminous coal decreased $1,165,871, or 13.19 per cent; and revenue from the transportation of other freight decreased $1,853,938, or 6.72 per cent. Passenger revenues decreased $273,504, or 10.82 per cent. Operating expenses amounted to $39,867,756, an increase of $2,027,979 or 5.3 per cent over 1944, principally due to an increase in amortization charges pertaining to equipment acquired and covered by certificates of necessity. Net income amounted to $418,852 in 1945 as compared with $3,965,465. Net income before depreciation and amortization of defense projects amounted to $7,206,592 in 1945 as compared with $8,107,102 in 1944.

GREAT NORTHERN.—*Refunding.*—As previously suggested (*Railway Age* of March 16, page 593), this company has extended its program for refunding outstanding debt at lower interest rates by applying to the Interstate Commerce Commission for authority to issue $25,000,000 of series R general mortgage gold bonds, due in 1961, with interest to be determined by competitive bidding. The proceeds and other funds are to be applied to the retirement at 105⅞ of an equal principal amount of series K 3⅛ per cent general mortgage gold bonds, due in 1960, remaining outstanding after completion of other refunding operations previously proposed.

GULF, MOBILE & OHIO.—*Annual Report.*—In his annual report for 1945, I. B. Tigrett, president of the Gulf, Mobile & Ohio, stated that the company entered the postwar era in the soundest financial and physical condition in its history. As of December 31, 1945, it had current assets of $19,797,280 and current liabilities of $10,749,124, or working capital of $9,048,156. (All indebtedness maturing within the next twelve months is carried as a current liability.) Long term debt as of December 31, 1945, was $25,183,300, and equipment obligations $4,656,907.

Railway operating revenues in 1945 were $38,080,032, an increase of $343,346 over 1944, and railway operating expenses $30,716,518, an increase of $4,764,268. Net income for 1945 amounted to $1,443,810, as compared with $3,218,150 in 1944. In connection with the increase in railway operating expenses, the report called attention to non-recurring expenses aggregating approximately $5,194,000 and consisting mainly of amortization of emergency facilities, including accelerated amortization, of $2,030,000; repair work done by outside contractors to stations, shop buildings and other physical properties in the amount of $2,521,000; the retirement of the Millstadt Branch sold to the Columbia & Millstadt Railroad Co., $141,000; and other non-recurring expenses amounting to approximately $502,000. The company's state and federal income tax accruals for 1945 were $361,082. If it had not been for the above mentioned expenditures and charges, the accruals for the year would have been $4,734,374.

LITCHFIELD & MADISON.—*Exchange of Stock.*—On this company's petition, Division 4 of the Interstate Commerce Commission has authorized it to issue 5,000 shares of new 4 per cent preferred stock of $100 par value in exchange for the preferred presently outstanding, instead of 20,000 shares of $25 par value previously authorized. (Previous item in *Railway Age* of March 9, page 529.)

LOUISIANA & ARKANSAS.—*Refinancing.*—This company has asked the Interstate Commerce Commission for authority to issue $14,000,000 of promissory notes, secured by a collateral first mortgage bond, in connection with a bank loan in that amount, arranged on a 1¾ per cent interest basis, for the purpose of obtaining funds with which to retire at 103 an equal principal amount of its series A general mortgage 5 per cent bonds, the whole amount outstanding. The bank loan is being obtained, it was indicated, to permit prompt retirement of the 5 per cent bonds while arrangements are being perfected for long-term financing at a lower interest rate.

MINNEAPOLIS & ST. LOUIS.—*Annual Report.*—Net income of the Minneapolis & St. Louis in 1945 amounted to $574,040, as compared with $1,675,459 in 1944, a decrease of $1,101,419. A total of $2,069,911 was charged to operating expenses last year as amortization of war facilities. If this extraordinary charge was eliminated, net income in 1945 would have been approximately $1,808,000, an increase over 1944 of about $133,000.

The company handled a greater volume of traffic than in 1944. In the report, L. C. Sprague, president, said that although the company was affected by a reduction in war traffic, this was more than offset by additional business secured through the service and sales program carried into effect by the entire traffic organization, and through the efforts of the industrial development department in locating new industries on the railroad which produced substantial tonnage.

NEW YORK, CHICAGO & ST. LOUIS.—*Refinancing.*—This company has applied to the Interstate Commerce Commission for authority to issue $41,500,000 of series F refunding mortgage bonds, due in 1986, the interest rate to be determined by competitive bidding. The proceeds and other funds are to be applied to the retirement at 105½ of $41,796,000 of series D 3¾ per cent refunding mortgage bonds, due in 1975.

NEW YORK, CHICAGO & ST. LOUIS.—*Plans Refunding.*—The New York, Chicago & St. Louis has authorized an offering of $41,500,000 of new 40-year bonds which, with treasury funds, will be used to refund on July 1, at 105½ and accrued interest, the outstanding $41,796,000 of 3¾ per cent refunding mortgage bonds due January 1, 1975. The latter issue was sold on December 19, 1944, at an average annual interest cost of 3.73 per cent. John W. Davin, president of the Nickel Plate, said the issue is expected to be ready for competitive bids on April 16. The new bonds are to be issued under the road's refunding mortgage, which is a first and only mortgage on all of the company's lines, aggregating 1,687 miles. Also outstanding under this mortgage are the $58,000,000 of series E 3¼ per cent bonds which were sold on April 26, 1945.

Completion of this refinancing would be the fourth such operation under the debt simplification program initiated in September, 1944. It would bring Nickel Plate's non-equipment debt down to $99,500,000, compared with $151,662,000 at the end of 1936. Annual interest charges, aggregating $7,500,000 at the start of 1937, have been cut to $3,800,000, and would be further reduced by the proposed refunding.

PENNSYLVANIA.—*Refunding.*—The Pennsylvania Company, a wholly-owned subsidiary of this company, has applied to the Interstate Commerce Commission for authority to issue $30,000,000 of secured serial notes, to mature in 20 equal annual portions from 1947 to 1966, inclusive, the interest rates to be determined by competitive bidding. The proceeds and other funds are to be applied to the retirement of $12,000,000 of series A serial notes, the interest rates on which vary with maturity dates, and $20,000,000 of series B 3⅛ per cent secured sinking fund notes due in 1969.

SOUTHERN PACIFIC.—*Awards Bonds.*—On March 25 the Southern Pacific sold $25,000,000 of 2¼ per cent first mortgage bonds, series G, to Kuhn Loeb & Co. at 98.319, an annual interest cost to the railroad of about 2.386 per cent. The bonds were reoffered at 98¾. (Previous item in *Railway Age* of March 23, page 658.)

UNION PACIFIC.—*Jeffers Named Vice-Chairman of Board.*—W. M. Jeffers, who resigned recently as president of the Union Pacific, has been elected vice-chairman of the board of directors of that road.

UNION PACIFIC.—*Refunding.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue $81,602,000 of series C 2½ per cent refunding mortgage bonds due in 1991, sold at 101.27 to Halsey, Stuart & Company and others, making the average annual cost to the company 2.45 per cent. The proceeds and other funds are to be applied to the retirement at 107 of an equal principal amount of series B 3 per cent refunding mortgage bonds due in 1990. A net saving of $12,957,376 to maturity was estimated, without giving consideration to income taxes and certain other items.

Average Prices Stocks and Bonds

	March 26	Last week	Last year
Average price of 20 representative railway stocks..	63.95	61.86	48.70
Average price of 20 representative railway bonds..	102.70	102.26	95.56

Railway Officers

EXECUTIVE

Lowry Smith, assistant to the vice-president of the Northern Pacific at St. Paul, Minn., has been promoted to assistant vice-president, with the same headquarters.

George J. Ray, vice-president of operations of the Delaware, Lackawanna & Western at New York has retired (effective April 1), in compliance with the company's pension rules.

E. E. Breese, assistant to the general manager of the Tennessee Central, at Nashville, Tenn., has been promoted to assistant to the president, with the same headquarters.

John Q. Beckwith, vice-president of the Virginia & Carolina Southern (a subsidiary of the Atlantic Coast Line), with headquarters at Lumberton, N. C., has retired at the age of 71, after 46 years of railway service. He entered railroading in May, 1900, in the office of the auditor freight receipts of the Atlantic Coast Line,

John Q. Beckwith

then was transferred to the Virginia & Carolina Southern in 1911, as auditor and car accountant. Mr. Beckwith was advanced to assistant to the general manager in 1917, then became vice-president in charge of the traffic, operating and accounting department in 1924, and served in this capacity until his retirement became effective on March 1.

M. M. Cronk, general manager of the Pere Marquette, has been advanced to vice-president and general manager and **W. M. Whanger,** assistant to president, has been promoted to the position of assistant vice-president—assistant to president, both with headquarters as before at Detroit, Mich. The appointments are effective on April 1.

John A. Appleton, whose appointment as vice-president—operation, of the Pennsylvania, with headquarters at Philadelphia, Pa., was announced in the *Railway Age* of March 16, was born in New York on December 24, 1891, and was graduated from Yale University (B. A., 1914). He entered railroading in 1915 as a yard clerk for the Pennsylvania, then served from 1917 to 1919 in the United States Army, attaining the rank of captain in the Transportation Corps. He returned to the Pennsylvania as terminal supervisor, became assist-

John A. Appleton

ant freight trainmaster in 1920, then served as trainmaster at various points until 1924, when he advanced to superintendent, on the Monongahela, Erie and Ashtabula, Columbus, and Pittsburgh divisions, successively. In 1929, Mr. Appleton was named acting general superintendent, Lake division, with headquarters at Cleveland, Ohio, and later that year, general superintendent, Northwestern division, Chicago, returning to the Lake division in that capacity in 1931, then transferring to the Eastern Pennsylvania division, Harrisburg, Pa., in 1933. He was promoted to general manager, New York zone, in 1935, from which post he was granted a leave of absence for Army duty in 1942. Initially commissioned a colonel, he served for a time in the War department at Washington, D. C., as chief of the Rail Division, Office of the Chief of Transportation, then was appointed director of military railways in Assam, India, and later, director general of military railways, Supreme Headquarters, Allied Expeditionary Forces, in the European theatre, with the rank of brigadier general. At the close of hostilities he became director of Transport Division, Office of Military Government for Germany, with headquarters at Berlin. His appointment as P. R. R. vice-president—operation, made upon his return to civilian life, became effective on March 6.

FINANCIAL, LEGAL AND ACCOUNTING

G. M. Hair, who resigned in 1944 as regional counsel of the Canadian National, but continued to serve as consulting counsel, with headquarters at Winnipeg, Man., has retired after 34 years of service.

Joseph C. Hahn has been appointed assistant to the comptroller of the Central of New Jersey, a post which has been vacant for several years. Effective with his new appointment, Mr. Hahn's former post as auditor of miscellaneous accounts has been abolished and the duties of the division combined with those of the assistant to the comptroller. In addition, **D. F. Borell,** auditor of passenger traffic, has been appointed assistant auditor of freight traffic; **J. R. Powers,** chief of the operating expense bureau, has become auditor of passenger traffic; and **H. P. Mead,** assistant auditor of disbursements, has been advanced to auditor of disbursements, succeeding **W. H. Carpenter,** who retired recently after serving with the Jersey Central since 1918. Messrs. Hahn, Borell, Powers and Mead will maintain headquarters at Jersey City, N. J.

John G. Keely has been appointed tax attorney of the Central of New Jersey, effective April 1. He has resigned as a member of the staff of Stryker, Tams and Horner, Newark, N. J., law firm.

OPERATING

T. R. Good, whose appointment as superintendent of the Southern at Asheville, N. C., was announced in the *Railway Age* of March 2, was born on May 11, 1890, at Limestone, Tenn., and was graduated from Wesleyan Academy. He entered railway service in 1909 as an extra agent-operator for the Southern on the Knoxville division, subsequently serving as operator at Bulls Gap, Tenn.; Sweetwater, Johnson

T. R. Good

City, and Knoxville, before his promotion to extra-dispatcher on the Knoxville division in 1919. In 1920 he was advanced to chief dispatcher and in 1926 to trainmaster, both on the Appalachian division, later transferring successively to the Asheville division, the Knoxville division, and then to Knoxville in 1939. In March, 1944, he was appointed assistant superintendent there, the position he held until his present promotion.

Perry M. Shoemaker, general superintendent of the Delaware, Lackawanna & Western, has been advanced to general manager, in charge of operations, with headquarters as before at New York. **James F. Scanlon,** acting superintendent of the Morris and Essex division at Hoboken, N. J., has been appointed assistant to the general manager, while **William G. White,** former superintendent of the Buffalo division, who has been on leave of absence incident to military service, has been appointed superintendent of the Mor-

News Department continued on next left-hand page

PROSPERITY

Depends upon The Railroads

AMERICA always counts on its railroads to provide the economical transportation on which prosperity depends. And throughout the years the railroads have responded by steadily developing their facilities to expedite the handling of traffic.

An important factor in enabling the railroads to do this has been their use of modern, more powerful steam locomotives, such as this Lima-built 2-8-4 of the Richmond, Fredericksburg and Potomac R. R.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

ris and Essex division, succeeding Mr. Scanlon. **Harry B. Hill,** passenger trainmaster of the Morris and Essex division, has been advanced to assistant superintendent of that division. All of these appointments are effective April 1.

J. P. Dowey, whose appointment as superintendent, dining service, of the New York Central, with headquarters at Buffalo, N. Y., was announced in the Febru-

J. P. Dowey

ary 16 *Railway Age,* began his railway career with the New York Central in 1928, as dining car steward in the Chicago district, advancing to chief steward in 1936, and in 1939 to assistant superintendent dining service, Chicago district. He was appointed assistant to manager of dining service at New York in August, 1945, maintaining this position until his promotion to superintendent, Buffalo district, on February 1.

John Andrew Rogers, whose appointment as general manager and chief engineer of the Central Vermont (part of the Canadian National System), with headquarters at St. Albans, Vt., was announced in the March 16 issue of *Railway Age,* was born

John Andrew Rogers

at Cayuga, Ont., on July 19, 1883, and was graduated from the Royal Military College, Kingston, Ont. He entered railroading as a draftsman for the Illinois Central at Chicago in 1904, then went with the National Transcontinental in 1905 as an engineering assistant, which post he left in 1911 to become resident engineer for the Mackenzie Mann Company, at Edmonton, Alta. In 1916, Mr. Rogers was appointed division engineer of the Canadian Northern (C. N. R. affiliate) and the Canadian National, at Saskatoon, Sask., and in 1927, assistant superintendent of the C. N. R. there. He was advanced to superintendent in 1930, and served successively at Prince Albert, Sask., Hornepayne, Ont., Allendale, Ont., and Ottawa, Ont. He was appointed assistant general manager, Central region, with headquarters at Toronto, Ont., in 1944, and maintained this post until his recent appointment became effective on March 8.

J. I. McHugh, assistant superintendent of station service and freight claim prevention of the Chicago, Rock Island & Pacific, at Chicago, has been promoted to manager of merchandise service with the same headquarters.

J. L. Mumma, assistant division superintendent of the St. Louis-San Francisco at Newburg, Mo., has been transferred to Ft. Scott, Kan., in charge of the Kansas City and Ash Grove sub-divisions, succeeding **L. E. Sullivan,** assigned to other duties.

Ernest L. Potarf, assistant division superintendent of the Chicago, Burlington & Quincy at Sterling, Colo., has been promoted to superintendent of the Casper-Sheridan division, with headquarters at Casper, Wyo., succeeding **James S. Miller,** who has retired after 40 years of service.

Harold L. Kimble, freight trainmaster of the Philadelphia division of the Pennsylvania, has been promoted to superintendent of the Toledo division, with headquarters at Toledo, Ohio, succeeding **Henry D. Kruggel,** who has been transferred to Terre Haute, Ind. He replaces **John W. Leonard,** who in turn has been transferred to Eastern division, with headquarters at Pittsburgh, Pa.

Robert J. Stone, whose promotion to superintendent of the Birmingham division of the Southern, with headquarters at Selma, Ala., was reported in the *Railway Age* of March 9, was born at Louisville, Ky., on January 16, 1907, and received his higher education at Purdue University. He entered railway service on October 1, 1928, as a rodman of the Southern at St. Louis, Mo., and from 1929 to April, 1941, he served consecutively as junior engineer, student apprentice, assistant to the roadmaster, track supervisor and assistant trainmaster. His various headquarters included Somerset, Ky., Dayton, Tenn., and Oakdale. On the latter date Mr. Stone was promoted to trainmaster, with headquarters at Selma, being later transferred to Valdosta, Ga., Hattiesburg, Miss., and Birmingham, Ala. In February, 1946, he was advanced to assistant division superintendent at Sheffield, Ala., the position he held at the time of his new appointment.

John R. Stemm, whose retirement as superintendent of the Northern division of the Chicago, Indianapolis & Louisville was reported in the *Railway Age* of March 9, was born at Wooster, Ohio, on July 27, 1870, and entered railway service on September 6, 1886, as a telegrapher of the Chicago & Atlantic (now a part of the Erie) at Rochester, Ind. In 1889 he went with the New York, Pennsylvania & Ohio (now also a part of the Erie) as a copy operator and dispatcher, with headquarters at Galion, Ohio. In 1892 Mr. Stemm became a telegraph operator of the Louisville, New Albany & Chicago (now the Monon) at Bloomington, Ind., subsequently serving as dispatcher, night chief dispatcher and chief dispatcher. In 1914 he was promoted to trainmaster of the Southern division and two years later he was transferred to the Northern division. In 1918 Mr. Stemm was advanced to superintendent of the Northern division, being transferred to the Southern division in 1920. In 1942 he was transferred back to the Northern division, remaining in that capacity until his retirement.

TRAFFIC

H. S. Granger, freight traffic representative of the Canadian National at Winnipeg, Man., has been promoted to district freight agent, with the same headquarters.

T. A. O'Donnell, chief clerk of the general freight department of the Chicago & North Western, at Chicago, has been promoted to assistant general freight agent, with the same headquarters, a newly-created position.

Frank T. Lewis, general agent of the Chicago & North Western at Pittsburgh, Pa., has been transferred to San Francisco, Cal., in the same capacity, succeeding **James J. Livingston,** who has retired after 47 years of service.

C. E. Sawyer, division passenger agent of the Southern, at Cincinnati, Ohio, has been promoted to assistant general passenger agent, with the same headquarters, succeeding **T. J. Connell,** who has retired after 46 years of service.

Sidney W. Bone, whose promotion to general passenger agent of the New York Central, with headquarters at Chicago, was reported in the *Railway Age* of March 23, was born at Rutledge, Mo., on August 27, 1901. He entered railway service on April 17, 1927, as an apprentice telegraph operator of the Atchison, Topeka & Santa Fe at Wyaconda, Mo., later serving as an operator. In 1924 he was appointed ticket agent at Albuquerque, N. M., and in the same year he was transferred to Los Angeles, Cal. On February 1, 1929, Mr. Bone went with the New York Central as a traveling passenger agent, with headquarters at Los Angeles, and on November 15, 1937, he was advanced to general agent at San Francisco, Cal. On July 1, 1941, Mr. Bone was promoted to division passenger agent, with headquarters at Chicago, and four years later he was further advanced to assistant general passenger agent at that point, the position he held at the time of his new appointment.

William Wallace, assistant general passenger agent of the Chicago, Milwaukee, St. Paul & Pacific, at Seattle, Wash., has been promoted to general passenger agent, with the same headquarters, succeeding **J. F. Bahl,** who has retired after 50 years

News Department continued on next left-hand page

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of service. The position of assistant general passenger agent at that point has been abolished.

Mr. Bahl was born at Chicago on November 23, 1878, and entered railway service on August 1, 1896, as a clerk in the accounting department of the Chicago, Burlington & Quincy, at Chicago. He subsequently served in various clerical capacities in the passenger traffic department until October 7, 1910, when he went with the Milwaukee as a city ticket agent at Butte, Mont. One year later he was promoted to advertising agent, with headquarters at Seattle, and on May 18, he was advanced to special passenger agent, with the same headquarters. On April 1, 1917, Mr. Bahl was promoted to city passenger agent at Seattle, and on May 1, 1926, he was advanced to assistant general passenger agent, with the same headquarters, holding that position until December 1, 1943, when he was promoted to the position he held at the time of his retirement.

Charles E. Williams, whose appointment as assistant passenger traffic manager of the New York, New Haven & Hartford, with headquarters at Boston, Mass., was announced in the *Railway Age* of

Charles E. Williams

March 9, was born at Stormville, N. Y., on October 12, 1890, and entered the service of the New Haven in 1907 as a rodman in the engineering department. He was promoted successively to various important posts in the engineering department, then in 1935 was named district traffic agent at Pittsfield, Mass., advancing to district passenger agent at New Haven, Conn., in 1938. Mr. Williams maintained the latter post until his recent appointment became effective on March 5.

ENGINEERING & SIGNALING

H. B. Garrett and **A. F. Green,** general signal inspectors of the Southern Pacific at San Francisco, Cal., have been promoted to assistant signal engineers, with the same headquarters.

William W. Gwathmey, Jr., whose appointment as engineer of construction for the Baltimore & Ohio, with headquarters at Baltimore, Md., was announced in the *Railway Age* of March 16, was born on January 18, 1889, and entered railroad service in 1911 as axeman for the B. & O. He advanced successively, becoming chainman, rodman, transitman, assistant resident engineer, then field engineer, before he was furloughed for military duty in 1917. He returned to the B. & O. in 1919 as transitman, was promoted to field engineer in

William W. Gwathmey, Jr.

1923, then assistant engineer at Baltimore in 1924, and resident engineer there in 1935, then again assistant engineer in 1936. Mr. Gwathmey advanced to district engineer in 1941, which position he maintained until his current promotion, effective March 7.

E. Lockhart has been appointed superintendent telegraph and signals of the Virginian, with headquarters at Princeton, W. Va., succeeding **A. R. Kyle,** who has retired at his own request, effective April 1.

W. L. Hartzog, recently discharged from the United States Army as lieutenant colonel and formerly engineer of design for the Atlantic Coast Line, has returned to the A. C. L. as assistant bridge engineer, with headquarters at Wilmington, N. C.

Joseph W. Jones, whose appointment as regional engineer of the Baltimore & Ohio, with headquarters at Baltimore, Md., was announced in the March 16 issue of

Joseph W. Jones

Railway Age, was born on November 24, 1896, at Baltimore, and entered railroading in 1917 as a chainman for the B. & O. He served subsequently as rodman, inspector, engineering accountant, and field engineer, and was advanced to resident engineer in 1935, then appointed assistant engineer in 1937, and again promoted in 1942, becoming senior assistant engineer, which post he held until his appointment as regional engineer became effective on March 7.

Richard Mather, whose retirement as engineer of construction of the Baltimore & Ohio, with headquarters at Baltimore, Md., was announced in the March 16 *Railway Age,* was born at New Haven, Conn., in 1887, and was graduated from Sheffield Scientific School, Yale University (Ph. B., civil engineering, 1897). He entered railway service with the Chicago & Western in 1898 in the engineering department, then served on the engineering staffs of the Chicago Great Western, the Chicago, Burlington & Quincy, and the Erie, successively until 1911, when he joined the B. & O. as assistant engineer. He was advanced to district engineer, then assistant to chief engineer, and, in 1941, was appointed engineer of construction. Mr. Mather's retirement became effective on March 7.

George M. Brown, whose appointment as electronics engineer for the New York Central, with headquarters at New York, was announced in the *Railway Age* of

George M. Brown

January 19, was born on December 16, 1908, at Outlook, Wash., and was graduated from Washington State College (B. S., electrical engineering, 1929). He entered the employ of the General Electric Company in July, 1929, in the radio engineering department, later called transmitter division of electronics department, advancing to section leader, with engineering responsibility for emergency equipment. Mr. Brown joined the New York Central on January 1, 1946.

MECHANICAL

W. H. Waltman, who recently resigned as supervisor of power plants of the Missouri Pacific at St. Louis, Mo., has been appointed engineer of shop plants and machinery of the Chicago, Rock Island & Pacific, with headquarters at Chicago, succeeding **L. C. Bowes,** whose promotion to electrical engineer was reported in the *Railway Age* of March 2.

Frank E. Russell, Jr., assistant superintendent of motive power of the Southern Pacific, who has been serving with the

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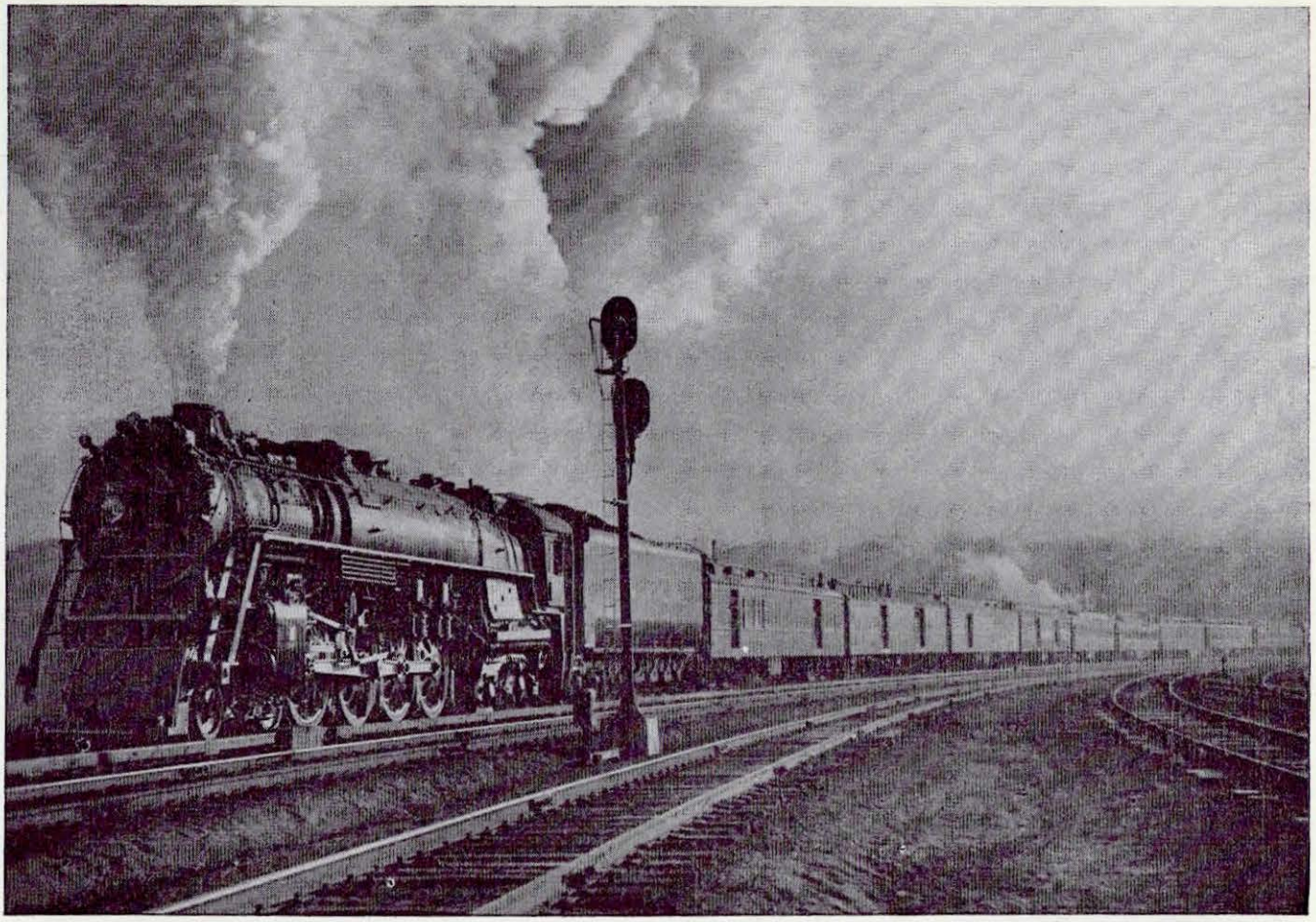

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SECURITY CIRCULATOR DIVISION

armed forces overseas since 1942, has returned to the Southern Pacific as superintendent of motive power, with headquarters at Sacramento, Cal. He succeeds **A. B. Wilson,** whose death on December 16, 1945, was reported in the *Railway Age* of December 29.

George L. Ernstrom, whose promotion to general mechanical superintendent of the Northern Pacific, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of March 23, was born in Norway on May 28, 1886, and entered railway service with the Northern Pacific on May 1, 1903, as a locomotive fireman at Duluth, Minn. He later served as engineman and as road foreman of engines at Forsyth, Mont., and Glendive, and on May 1, 1926, he was assigned to special duty, conducting tests for the fuel department, with headquarters at Livingston, Mont. On May 1, 1928, Mr. Ernstrom was promoted to master mechanic, with headquarters at Staples, Minn., later being transferred to Pasco, Wash., and Missoula. In 1930 he was advanced to general master mechanic, with headquarters at St. Paul, and on March 1, 1941, he was transferred to Seattle, Wash. On

George L. Ernstrom

June 16, 1942, Mr. Ernstrom was promoted to assistant superintendent of motive power, western district, at Seattle, and in January, 1944, he was advanced to superintendent of motive power, with headquarters at St. Paul, the position he held at the time of his new appointment.

F. W. Taylor, assistant superintendent of motive power, eastern district, of the Northern Pacific at St. Paul, Minn., and **A. H. Fiedler,** assistant superintendent of motive power, western district, at Seattle, Wash., have been promoted to superintendents of motive power of their respective districts, with the same headquarters. **J. A. Cannon,** master mechanic at Spokane, Wash., has been advanced to assistant to the general mechanical superintendent, with headquarters at St. Paul. **A. I. Anderson,** general foreman at St. Paul, has been promoted to master mechanic, with headquarters at Glendive, Mont., succeeding **N. V. Hendy,** who has been transferred to Jamestown, N. D., relieving **A. H. Stohle,** who in turn has been transferred to Spokane, replacing Mr. Cannon.

James P. Cargill, whose appointment as superintendent of the Hayne car shop of the Southern at Spartenburg, S. C., was announced in the *Railway Age* of

James P. Cargill

January 12, was born on November 4, 1895, at Hartwell, Ga., and entered railroading in 1919 as a machinist for the Southern at the Hayne roundhouse at Spartenburg. He was advanced to assistant foreman of the roundhouse at Columbia, S. C., in 1922, then to foreman of the roundhouse at Hayne, S. C., in 1923, where he became general foreman in 1924, then transferred to Asheville, N. C., in 1928. Mr. Cargill was promoted to master mechanic in 1934, and served at Lawrenceville, Va., Richmond, and Columbia, S. C., successively until 1944, when he was named assistant master mechanic at Spencer, N. C., the largest shop on the Eastern lines of the Southern. He maintained the latter post until his appointment as superintendent Hayne car shop on January 1.

George T. Strong, whose retirement as superintendent of motive power of the Vir-

George T. Strong

ginian, with headquarters at Princeton, W. Va., was announced in the March 2 issue of *Railway Age,* was born at Clifton Forge, Va., on December 22, 1883, and entered railway service there in 1902 as machinist apprentice for the Chesapeake & Ohio. He went with the Norfolk & Western as machinist at Bluefield, W. Va., then joined the Virginian in 1910, as machinist at Princeton. He was promoted successively to erecting shop foreman, April, 1911; machine shop foreman, August, 1911; general erecting shop foreman, April, 1915; and general foreman over a group of shops, December, 1918. Mr. Strong advanced to master mechanic in 1923, then to general master mechanic in 1936. He became assistant superintendent motive power in 1937.

PURCHASES AND STORES

F. H. Fechtig, whose retirement as purchasing agent of the Atlantic Coast Line, with headquarters at Wilmington, N. C., was announced in the March 23 issue of *Railway Age,* was born in Hagerstown, Md., on July 10, 1865, and entered railway service in 1881 as a messenger for the Shenandoah Valley (now the Norfolk &

F. H. Fechtig

Western), subsequently becoming junior clerk and timekeeper. He joined the Washington, Ohio & Western (now the Old Dominion Electric Line) as chief clerk to the superintendent, later went with the Chesapeake & Ohio as chief clerk of transportation, office of superintendent, then, in 1887, became secretary to the first vice-president of the Atlantic Coast Line Association (now the A. C. L.). Mr. Fechtig was appointed purchasing agent in 1894, and maintained the position for 52 years until his retirement, effective March 31. He had served as a member of the Central Advisory Purchasing Commission, United States Railroad Administration, Washington, D. C., and later as chairman, Regional Purchasing Commission, U. S. R. A., Atlanta, Ga., during World War I.

E. L. Grimm, whose retirement as general mechanical superintendent of the Northern Pacific, with headquarters at St. Paul, Minn., was reported in the *Railway Age* of March 23, was born at Indianapolis, Ind., on February 9, 1879, and received his higher education in the school of mechanical engineering of Purdue University, graduating in 1901. He entered railway service in

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the same year as a special apprentice on the Chicago Great Western, becoming a machinist in June, 1904. Later in the same year Mr. Grimm left this company to go

E. L. Grimm

with the Northern Pacific as a draftsman at St. Paul, which position he held until 1907, when he went with the Michigan Central as chief draftsman at Detroit, Mich. Two years later he returned to the Northern Pacific as chief draftsman which position he held until 1916, when he was appointed mechanical valuation engineer. In 1918 Mr. Grimm was advanced to mechanical engineer and in 1923 he was further promoted to assistant to the general mechanical superintendent. In 1933 he was advanced to assistant to the operating vice-president, and three years later he was promoted to the position he held at the time of his retirement.

SPECIAL

John J. Fitzpatrick, whose election as chairman of the Traffic Executive Association—Eastern territory, and of Trunk Line Association, effective April 1, was announced in the March 23 issue of *Railway Age,* was born on April 24, 1900, at Baltimore, Md., attended Baltimore City College, and was graduated from the University of Maryland with a law degree in 1924. He entered railway service at Baltimore in the Camden freight office of the B. & O., and subsequently specialized in rate work in the district freight and general freight offices. He was named commerce agent in 1926 and advanced to attorney in the law department in 1929, then to assistant general attorney in 1935. Since 1941 Mr. Fitzpatrick has been general attorney of the Chesapeake & Ohio, the New York, Chicago & St. Louis, and the Pere Marquette, with headquarters at Cleveland, Ohio.

Affiliated Photo—Conway

John J. Fitzpatrick

OBITUARY

Edward G. Taber, who retired in 1932 as chief engineer of the Spokane International, died at Spokane, Wash., on February 19.

Theodore E. P. Pringle, passenger traffic manager of the Grand Trunk Western, with headquarters at Chicago, died at his home in that city on March 24.

C. A. Cotterell, who retired last December as assistant general manager, Western Lines, of the Canadian Pacific, with headquarters at Vancouver, B. C., died in that city recently. A biographical sketch of Mr. Cotterell's career appeared in the *Railway Age* of February 9 in conjunction with his retirement.

Operating Revenues and Operating Expenses of Class I Steam Railways

(Switching and Terminal Companies Not Included)§

FOR THE MONTH OF JANUARY, 1946 AND 1945

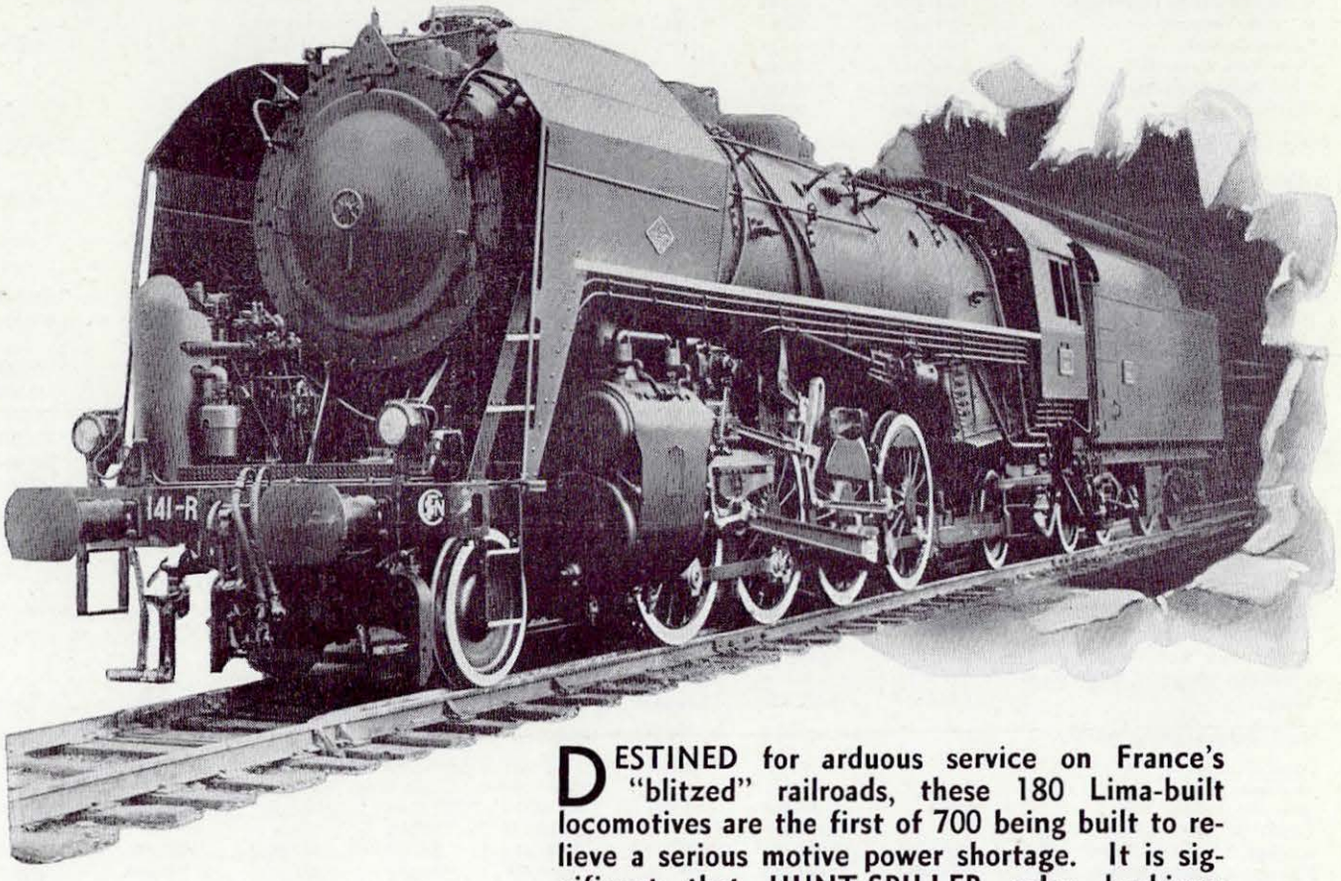
Item	United States		Eastern District		Southern District		Western District	
	1946	1945	1946	1945	1946	1945	1946	1945
Miles of road operated at close of month	227,904	228,322	55,970	56,021	43,286	43,338	128,648	128,963
Revenues:								
Freight	$453,399,358	$558,449,831	$173,535,732	$200,434,389	$93,066,913	$113,497,863	$186,796,713	$244,517,579
Passenger	137,602,175	139,243,148	55,541,133	56,802,175	22,794,350	27,780,796	59,266,692	54,660,177
Mail	10,559,778	11,067,177	3,569,875	3,602,445	1,804,430	1,923,346	5,185,473	5,541,386
Express	8,340,289	12,065,391	791,256	3,364,716	1,496,441	1,876,651	6,052,592	6,824,024
All other operating revenues	30,970,280	30,085,624	13,968,289	13,206,849	4,271,156	4,483,335	12,730,835	12,395,440
Railway operating revenues‡	640,871,880	750,911,171	247,406,285	277,410,574	123,433,290	149,561,991	270,032,305	323,938,606
Expenses:								
Maintenance of way and structures	86,355,561	97,087,657	31,451,336	36,857,725	18,217,010	17,970,119	36,687,215	42,259,813
Depreciation	9,967,214	9,581,280	4,283,351	4,206,032	1,617,890	1,522,887	4,065,973	3,852,361
Retirements	809,730	353,815	95,048	79,301	68,617	54,441	646,065	220,073
Deferred maintenance	*492,489	*236,335	*19,190	*31,286	*182,176	.....	*291,123	*205,049
Amortization of defense projects	*73,545	2,110,780	10,020	609,815	*52,207	358,243	*31,358	1,142,722
Equalization	5,113,933	5,598,656	2,467,533	2,992,443	1,385,228	1,387,641	1,261,172	1,218,572
All other	71,030,718	79,679,461	24,614,574	29,001,420	15,379,658	14,646,907	31,036,486	36,031,134
Maintenance of equipment	116,831,910	137,198,400	49,774,470	55,783,057	21,238,437	25,985,343	45,819,003	55,430,000
Depreciation	18,309,428	17,804,065	7,629,322	7,497,473	3,733,786	3,580,381	6,946,320	6,726,211
Retirements	*24,083	*13,528	*6,873	*5,271	*11,653	*4,849	*5,557	*3,408
Deferred maintenance and major repairs	*233,505	*141,600	.....	.....	*59,002	.....	*174,503	*141,600
Amortization of defense projects	556,420	16,784,010	215,442	5,527,503	130,596	3,991,421	210,382	7,265,086
Equalization	224,243	161,771	9,616	*2,806	173,411	125,402	41,216	39,175
All other	97,999,407	102,603,682	41,926,963	42,766,158	17,271,299	18,292,988	38,801,145	41,544,536
Traffic	11,853,002	11,442,974	4,173,426	4,027,187	2,277,560	2,189,870	5,402,016	5,225,917
Transportation—Rail line	247,039,542	256,842,950	108,768,200	114,928,481	42,217,743	43,854,909	96,053,599	98,059,560
Transportation—Water line	.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous operations	10,424,244	10,225,839	4,028,682	3,819,811	1,490,436	1,691,914	4,905,126	4,714,114
General	17,555,096	17,247,425	7,058,305	6,991,804	3,452,028	3,307,898	7,044,763	6,947,723
Railway operating expenses	490,059,355	530,045,245	205,254,419	222,408,065	88,893,214	95,000,053	195,911,722	212,637,127
Net revenue from railway operations	150,812,525	220,865,926	42,151,866	55,002,509	34,540,076	54,561,938	74,120,583	111,301,479
Railway tax accruals	69,217,642	130,462,485	21,145,621	27,232,928	16,279,672	34,753,114	31,792,349	68,476,443
Pay-roll taxes	19,275,544	19,464,210	8,066,436	8,221,719	3,438,934	3,388,804	7,770,174	7,853,687
Federal income taxes†	25,409,650	87,592,059	1,574,754	9,964,238	8,371,618	26,263,943	15,463,278	51,363,878
All other taxes	24,532,448	23,406,216	11,504,431	9,046,971	4,469,120	5,100,367	8,558,897	9,258,878
Railway operating income	81,594,883	90,403,441	21,006,245	27,769,581	18,260,404	19,808,824	42,328,234	42,825,036
Equipment rents—Dr. balance	7,891,747	11,070,917	3,243,494	5,013,070	*1,086,420	202,711	5,734,673	5,855,136
Joint facility rent—Dr. balance	2,854,951	3,291,070	1,535,107	1,740,608	393,216	292,285	926,628	1,258,177
Net railway operating income	70,848,185	76,041,454	16,227,644	21,015,903	18,953,608	19,313,828	35,666,933	35,711,723
Ratio of expenses to revenues (per cent)	76.5	70.6	83.0	80.2	72.0	63.5	72.6	65.6

* Decrease, deficit, or other reverse item.
† Includes income tax, surtax, and excess-profits tax.
‡ Railway operating revenues are after deduction of $295,909 for January, 1946, and $2,710,156 for January, 1945, to create a reserve for land grant deductions in dispute.
§ Excludes Toledo, Peoria & Western—filed no report.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission.

1945 Income of Class I Railways appears on next left-hand page

OFF TO A GOOD START

180 "LIBERATION" LOCOMOTIVES for French Railways have HSGI bushings



DESTINED for arduous service on France's "blitzed" railroads, these 180 Lima-built locomotives are the first of 700 being built to relieve a serious motive power shortage. It is significant that HUNT-SPILLER valve bushings, cylinder bushings, and valve packing rings were picked to provide high availability and low maintenance for these badly needed locomotives—a logical choice, since most Class I American roads have long relied on HSGI long-wearing parts.

HUNT SPILLER GUN IRON
HSGI
AIR FURNACE PROCESS

HUNT-SPILLER MFG. CORPORATION

N. C. RAYMOND, *President* — E. J. FULLER, *Vice-Pres. & Gen. Mgr.*

383 Dorchester Ave. ★ South Boston 27, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agents:
International Rwy. Supply Co., 30 Church Street, New York 7, N. Y.

Cylinder Bushings	Crosshead Shoes	Dunbar Sectional Type Packing
Cylinder Packing Rings	Hub Liners	Duplex Sectional Type Packing
Pistons or Piston Bull Rings	Shoes and Wedges	for Cylinders and Valves
Valve Bushings	Floating Rod Bushings	(Duplex Springs for Above
Valve Packing Rings	Light Weight Valves	Sectional Packing)
Valve Bull Rings	Cylinder Liners and Pistons	Cylinder Snap Rings
	for Diesel Service	Valve Rings, All Shapes

Selected Income Items by Regions and Districts, Class I Steam Railways, Calendar Year 1945 and 1944

Region and Railway	Net Railway Operating Income		Net Income		Federal Income Taxes		Dividend Appropriations	
	1945	1944	1945	1944	1945	1944	1945	1944
United States—Total	$850,283,690	$1,106,327,151	$447,384,678	$666,055,568	$307,383,568	$1,303,895,493	$253,455,916	$245,978,216
Eastern District—Total	289,808,600	384,885,583	120,350,840	198,216,529	*65,748,147	297,690,555	80,274,139	72,350,088
New England Region—Total	17,831,437	35,039,553	3,681,342	20,826,512	*716,665	21,705,592	400,461	434,543
Bangor & Aroostook	1,232,913	1,455,316	747,104	947,421	850,125	1,980,371	334,950	334,950
Boston & Maine	3,560,677	10,094,131	*569,482	5,644,556	3,335	3,366,921	.....	.....
Canadian National in New Engl.	*884,114	*1,072,413	23,113	*173	.....	.....	.....	.....
Canadian Pacific in Maine	1,128,494	1,178,484	.....	.....	.....	.....	.....	.....
Canadian Pacific in Vermont	*1,247,216	*1,029,904	.....	.....	.....	.....	.....	.....
Central Vermont	49,378	828,024	*1,084,525	*736,670	8,122	163,060	.....	.....
Maine Central	1,514,833	1,880,732	428,710	715,232	*35,708	1,292,028	65,511	99,593
New York Connecting	2,143,161	1,555,014	1,178,806	504,214	*26,486	300,245	.....	.....
New York, New Haven & Hart.‡	10,552,809	20,146,318	3,596,689	14,071,121	*1,516,053	14,602,967	.....	.....
Rutland‡	*219,498	3,851	*639,073	*319,189	.....	.....	.....	.....
Great Lakes Region—Total	106,203,672	149,158,416	39,960,551	73,529,935	*57,425,100	116,513,289	23,376,241	23,054,819
Ann Arbor	564,372	665,324	331,123	423,121	212,866	334,055	.....	.....
Cambria & Indiana	591,059	652,469	570,381	625,071	866,115	839,041	540,000	540,000
Delaware & Hudson	3,004,621	8,848,260	418,853	3,965,465	181,217	1,091,000	.....	.....
Delaware, Lackawanna & Western	2,347,901	6,420,112	*3,292,145	87,181	*2,569,836	1,161,759	.....	.....
Detroit & Mackinac	82,830	65,267	*2,371	*19,439	.....	.....	.....	.....
Detroit & Toledo Shore Line	565,927	693,529	457,501	582,775	223,936	560,145	420,000	600,000
Erie	13,923,298	16,324,332	5,797,185	7,660,157	*12,592,047	11,825,517	4,472,819	4,472,819
Grand Trunk Western	4,216,139	5,383,576	82,497	1,139,260	*67,475	513,667	.....	.....
Lehigh & Hudson River	152,856	288,421	175,218	313,898	*164,264	334,065	282,420	94,140
Lehigh & New England	417,279	1,361,470	209,404	1,019,469	*106,662	581,328	136,000	680,000
Lehigh Valley	*586,119	7,828,292	*7,562,105	772,120	*2,784,161	1,412,234	.....	.....
Monongahela	1,082,217	1,238,428	607,177	744,392	379,100	722,624	249,800	374,700
Montour	670,338	758,310	664,017	743,326	477,447	529,442	510,000	306,000
New York Central	49,944,321	65,759,085	24,412,525	35,789,939	*40,339,527	50,933,112	9,671,091	9,671,091
New York, Chicago & St. Louis	12,402,778	11,290,714	8,083,229	7,225,924	*7,519,709	18,739,000	1,081,692	.....
New York, Ontario & Western‡	*1,218,763	*989,092	*2,630,327	*2,947,251	.....	.....	.....	.....
New York, Susq. & Western‡	601,705	910,185	38,014	348,388	36,868	271,926	.....	.....
Pere Marquette	3,766,230	5,010,307	2,139,121	3,012,076	*2,036,285	2,828,721	560,000	.....
Pittsburgh & Lake Erie	3,782,948	5,216,975	3,572,242	4,488,301	*230,670	5,538,050	3,454,600	4,318,250
Pittsburg & Shawmut	213,366	205,469	113,146	106,071	*94	*27,274	.....	.....
Pittsburgh & West Virginia	1,180,607	2,056,080	584,613	1,550,863	394,601	106,426	.....	.....
Pittsburg, Shawmut & Northern†	*168,351	*106,529	*313,181	*255,504	.....	.....	.....	.....
Wabash	8,666,113	9,277,432	5,504,434	6,154,332	8,213,480	18,218,451	1,997,819	1,997,819
Central Eastern Region—Total	165,773,491	200,687,614	76,708,947	103,860,082	*7,606,382	159,471,674	56,497,437	48,860,726
Akron, Canton & Youngstown	443,054	692,090	245,896	438,335	156,232	320,101	330,570	220,380
Baltimore & Ohio	37,043,094	41,648,378	8,660,319	12,857,503	572,829	28,909,468	.....	.....
Bessemer & Lake Erie	1,803,270	3,381,684	398,641	1,830,819	*2,734,188	2,157,028	2,000,000	1,500,000
Central of New Jersey‡	145,349	4,496,492	*3,684,837	217,932	*767,193	734,522	.....	.....
Chicago & Eastern Illinois	2,463,121	2,930,241	1,052,452	1,463,571	98,200	2,777,896	767,726	767,726
Chicago & Illinois Midland	879,843	990,058	558,992	668,650	656,800	1,465,584	300,000	300,000
Chicago, Indianapolis & Louisville‡	1,716,938	2,415,936	367,057	819,558	39,869	653,619	.....	.....
Detroit, Toledo & Ironton	1,305,947	2,152,105	803,308	1,646,580	468,368	723,460	981,328	1,103,994
Elgin, Joliet & Eastern	1,296,812	3,124,532	657,631	2,399,740	*2,978,983	3,056,050	3,820,000	3,820,000
Illinois Terminal	2,249,817	1,435,010	1,630,713	871,125	48,000	2,353,600	7,899,187	750,000
Long Island	2,715,001	2,813,649	857,579	983,280	279,917	564,158	.....	.....
Missouri-Illinois	447,249	569,213	446,533	520,480	416,772	580,841	.....	.....
Pennsylvania	87,180,539	108,972,066	49,008,238	64,720,431	916,019	91,746,512	32,919,385	32,919,385
Pennsylvania-Reading Seashore	*624,040	418,992	*1,615,723	*450,998	288,834	313,896	.....	.....
Reading	15,782,019	13,372,055	10,622,756	7,441,588	*8,999,842	12,466,009	4,197,985	4,197,985
Staten Island Rapid Transit	315,001	916,740	*230,357	289,245	*84,041	251,466	.....	.....
Western Maryland	7,147,584	7,005,936	4,239,834	4,120,860	1,681,025	4,266,464	1,241,947	1,241,947
Wheeling & Lake Erie	3,462,893	3,352,437	2,689,915	3,021,383	2,335,000	6,131,000	2,039,309	2,039,309
Southern District—Total	168,069,848	233,682,646	92,215,878	164,953,839	95,330,757	330,943,737	77,208,206	77,058,429
Pocahontas Region—Total	52,958,031	70,513,546	46,507,447	67,869,675	19,328,426	96,318,858	51,279,940	47,623,292
Chesapeake & Ohio	22,025,255	32,813,189	16,379,847	27,340,996	*8,853,399	38,838,190	26,239,870	26,800,739
Norfolk & Western	22,767,417	25,943,534	23,533,680	30,747,522	23,250,000	41,580,000	19,163,671	14,946,154
Richmond, Fred. & Potomac	2,102,776	4,638,406	2,346,426	4,815,431	6,585,919	12,026,727	1,071,949	1,071,949
Virginian	6,062,583	7,118,417	4,247,494	4,965,726	*1,654,094	3,873,941	4,804,450	4,804,450
Southern Region—Total	115,111,817	163,169,100	45,708,431	97,084,164	76,002,331	234,624,879	25,928,266	29,435,137
Alabama Great Southern	1,507,996	1,815,363	2,206,770	2,658,582	3,142,000	4,708,000	2,017,863	2,017,863
Atlanta & West Point	323,707	403,742	353,305	425,314	341,119	1,115,321	123,180	123,180
Atlanta, Birmingham & Coast	45,940	368,063	48,051	403,743	*12,062	341,360	.....	.....
Atlantic Coast Line	5,447,059	13,672,457	5,531,635	16,101,393	*800,000	35,675,000	3,096,982	2,480,117
Central of Georgia‡	3,807,448	6,397,292	*777,544	1,201,164	*5,022,792	1,799,332	.....	.....
Charleston & Western Carolina	557,279	712,397	283,335	436,148	*130,000	570,000	144,000	144,000
Cincinnati, N. O. & Texas Pacific	3,983,527	4,914,310	2,320,929	3,261,813	3,703,000	8,461,000	3,262,170	3,710,670
Clinchfield	3,356,981	6,094,811	.....	.....	525,846	692,383	.....	.....

* Deficit or other reverse item.
† Report of receiver or receivers.
‡ Report of trustee or trustees.

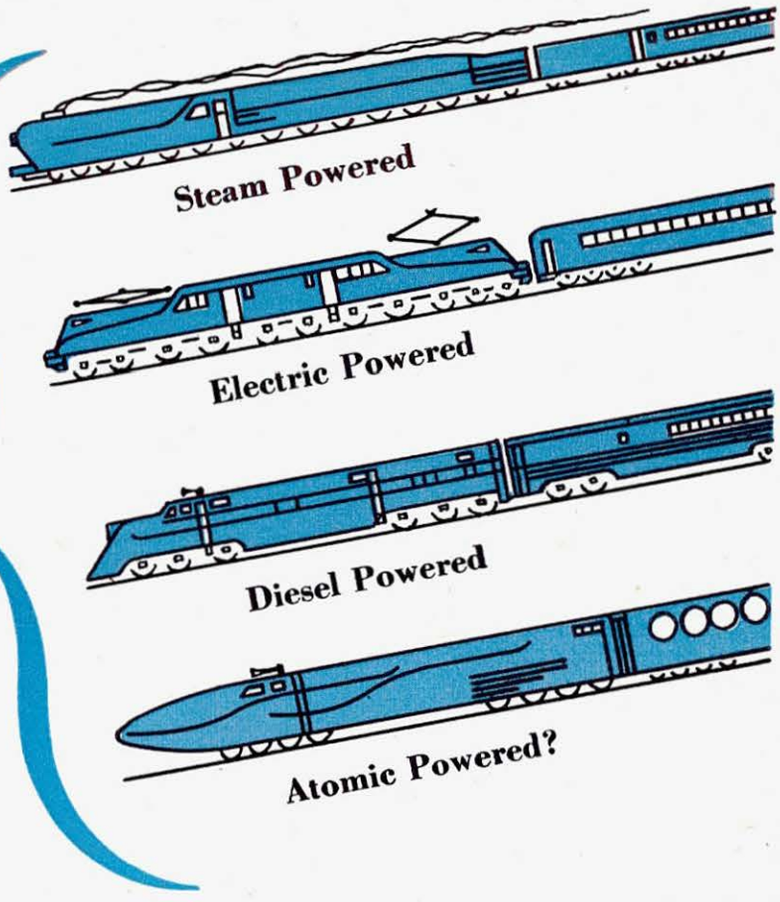
Yesterday!

Today!

Tomorrow?

AIR BRAKES—

Permit Passenger Trains to Move at Shorter Intervals and Higher Speeds, Safely



A control medium will be necessary of course, if, as some authorities claim, atomic energy can be used to run locomotives. It is interesting to note that all three present types of railroad power are controlled by air brakes. Regardless of the type of power, brake harmony and flexibility between power unit and cars are of paramount importance.

For instance, passenger cars now on order will be handled by the different types of power and most of the ordering railroads specify the modern "HSC" electro-pneumatic passenger brake. The pattern for braking is definitely "HSC". It meets present day operating requirements for speed, safety, and passenger comfort. And looks forward to higher speed and closer schedules that may develop with the anticipated expansion in passenger travel.

Specify the Complete "HSC" Schedule

Electro-pneumatic—improves schedules with flexibility and smoothness

Speed Governor Control—for control of high braking forces

"AP" Decelostat—for anti-wheel sliding protection

Westinghouse Air Brake Company

Wilmerding, Pa.

Selected Income Items by Regions and Districts, Class I Steam Railways, Calendar Year 1945 and 1944

Region and Railway	Net Railway Operating Income		Net Income		Federal Income Taxes		Dividend Appropriations	
	1945	1944	1945	1944	1945	1944	1945	1944
Southern Region—Continued								
Columbus & Greenville	$33,008	$60,943	$56,673	$84,955	$62,948	$135,574	$19,700	.....
Florida East Coast‡	4,401,728	5,951,599	*76,325	1,633,487	2,216,057	4,403,885	.....	.....
Georgia—Lessee Organization	956,779	2,879,839	.....	.....	.....	.....	.....	.....
Georgia & Florida†	*30,834	113,059	*771,178	*668,542	.....	.....	.....	.....
Georgia Southern & Florida	825,443	809,422	445,087	409,522	903,360	902,000	.....	.....
Gulf, Mobile & Ohio	2,762,860	4,624,909	1,384,112	3,158,452	306,935	2,989,644	1,417,707	$1,417,656
Illinois Central	20,331,845	24,885,452	10,683,748	15,934,523	21,331,746	36,892,765	.....	.....
Louisville & Nashville	22,701,472	22,637,129	17,536,341	18,607,778	19,613,075	51,455,651	8,225,100	8,190,000
Mississippi Central	219,052	366,389	117,306	253,067	57,021	164,007	.....	.....
Nashville, Chattanooga & St. Louis	3,179,777	3,698,204	1,838,971	2,342,433	*3,207,477	4,154,742	511,964	511,964
New Orleans & Northeastern	1,039,710	1,196,002	797,645	948,466	2,151,000	2,629,000	.....	.....
Norfolk Southern	494,336	682,845	11,663	197,022	88,652	220,437	.....	60,037
Seaboard Air Line†	8,156,216	22,300,395	*13,847,982	5,242,493	.....	18,500,000	.....	.....
Southern	26,817,767	33,415,840	16,298,721	22,261,814	29,004,700	52,357,000	6,894,600	10,464,650
Tennessee Central	284,767	376,707	59,110	149,844	*9,538	251,959	35,000	105,000
Western of Alabama	382,321	523,357	347,556	486,357	401,081	1,093,561	180,000	210,000
Yazoo & Mississippi Valley	3,525,633	4,268,574	860,502	1,554,336	1,335,660	5,112,258	.....	.....
Western District—Total	392,405,242	487,758,922	234,817,960	302,885,300	277,800,958	675,261,201	95,793,571	96,569,699
Northwestern Region—Total	119,404,704	144,456,197	78,259,158	80,398,727	*6,466,176	91,077,297	29,228,942	41,060,723
Chicago & North Western	18,192,820	23,086,701	14,116,780	15,472,225	3,300,000	15,995,000	7,021,544	22,372,055
Chicago Great Western	2,608,378	3,357,724	799,609	1,514,415	1,135,500	1,919,500	915,279	915,279
Chicago, Milw., St. P. & Pacific	26,582,330	32,709,519	14,077,911	11,503,682	*991,000	15,952,000	.....	.....
Chicago, St. P., Minn. & Omaha	3,176,542	3,453,622	889,986	1,072,223	598,663	567,000	.....	.....
Duluth, Missabe & Iron Range	15,200,192	9,335,449	14,397,338	8,329,545	*4,422,205	8,371,878	8,225,000	9,253,125
Duluth, South Shore & Atlantic‡	410,141	642,880	*519,927	*262,690	.....	.....	.....	.....
Duluth, Winnipeg & Pacific	41,786	180,909	401	*70	.....	.....	.....	.....
Great Northern	28,379,435	32,968,620	24,157,590	23,396,966	*1,825,882	25,913,692	9,255,749	5,008,894
Green Bay & Western	126,040	175,111	90,608	65,851	232,208	220,389	125,000	125,000
Lake Superior & Ishpeming	685,372	678,450	884,568	688,645	472,618	472,119	535,500	535,500
Minneapolis & St. Louis	593,451	1,795,224	574,040	1,675,459	188,673	1,403,203	600,000	300,000
Minneapolis, St. P.&S. Ste. Marie	2,804,235	5,710,168	1,754,433	1,038,308	1,613,316	720,000	.....	.....
Northern Pacific	18,273,700	23,378,121	11,559,860	13,160,986	*8,007,238	17,833,900	2,479,710	2,479,710
Spokane International	254,397	275,890	138,083	159,795	187,737	184,135	71,160	71,160
Spokane, Portland & Seattle	461,429	3,935,992	*2,959,433	1,925,981	84,962	584,365	.....	.....
Wisconsin Central‡	1,614,456	2,771,817	*1,702,689	657,406	966,472	940,116	.....	.....
Central Western Region—Total	174,156,708	229,788,531	111,515,110	160,974,471	182,703,750	412,476,641	63,154,106	52,649,778
Alton‡	2,563,814	4,460,904	573,299	2,614,884	*1,058,693	4,209,235	.....	.....
Atchison, Topeka & Santa Fe[1]	37,084,177	60,178,928	29,414,500	54,542,635	54,299,659	133,288,566	20,771,000	20,771,000
Chicago, Burlington & Quincy	34,349,789	32,074,823	27,405,399	24,647,122	17,380,215	43,335,722	10,250,322	5,125,161
Chicago, Rock Island & Pacific‡	22,195,945	26,079,689	7,023,987	10,451,128	18,644,239	33,500,000	.....	.....
Colorado & Southern	2,241,938	2,738,386	1,803,802	2,174,779	838,787	1,192,985	.....	.....
Colorado & Wyoming	233,508	344,787	158,964	265,853	103,900	74,700	.....	.....
Denver & Rio Grande Western‡	*1,153,850	10,554,956	*7,139,492	2,505,572	10,488,390	5,155,400	.....	.....
Denver & Salt Lake	979,562	874,663	51,490	1,813	31,403	1,667	.....	.....
Fort Worth & Denver City	1,189,002	2,974,141	*20,254	2,052,198	1,070,544	2,057,561	.....	.....
Northwestern Pacific	232,859	623,679	*1,105,107	*719,546	.....	.....	.....	.....
Southern Pacific	36,347,788	39,423,890	14,854,235	11,820,770	16,338,959	65,535,860	12,261,480	9,431,908
Southern Pacific System[2]	51,009,536	52,449,389	33,105,440	36,719,660	31,815,876	99,126,659	12,261,480	9,431,908
Toledo, Peoria & Western[3]	1,395,537	2,403,093	1,451,208	2,420,006	.....	.....	.....	.....
Union Pacific	31,107,553	36,526,015	33,031,580	41,070,895	60,600,000	118,000,000	17,321,709	17,321,709
Utah	186,803	196,971	105,932	113,412	74,075	*53,055	.....	.....
Western Pacific	5,202,283	10,333,606	3,905,567	7,012,950	3,892,272	6,178,000	2,549,595	.....
Southwestern Region—Total	98,843,830	113,514,194	45,043,692	61,512,102	101,563,384	171,707,263	3,590,523	2,859,198
Beaumont, Sour Lake & Western‡	856,281	848,417	792,244	745,339	2,050,000	4,534,276	.....	.....
Burlington-Rock Island	502,522	548,093	*105,746	*62,299	.....	.....	.....	.....
International-Great Northern‡	3,058,233	3,452,722	545,807	962,163	1,574,000	2,908,542	.....	.....
Kansas City Southern	7,421,883	6,450,047	5,616,864	4,418,162	1,615,000	6,230,000	525,000	420,000
Kansas, Oklahoma & Gulf	893,557	806,546	712,147	598,027	401,336	797,470	531,498	531,498
Louisiana & Arkansas	2,618,796	2,533,467	1,693,031	1,596,062	2,461,673	5,013,102	300,000	300,000
Midland Valley	277,196	226,727	78,563	79,995	*20,337	29,995	.....	.....
Missouri & Arkansas	*321,609	131,080	*319,196	89,999	*127,424	103,593	.....	35,000
Missouri-Kansas-Texas	8,782,443	9,469,440	5,867,599	6,110,115	9,013,000	6,587,000	.....	.....
Missouri Pacific‡	23,659,328	34,309,050	7,327,909	17,684,236	25,864,040	47,500,000	.....	.....
New Orleans, Texas & Mexico‡	2,383,232	4,309,795	*471,716	1,646,392	1,262,000	1,004,197	.....	.....
Oklahoma City-Ada-Atoka	191,284	278,254	147,131	222,661	50,755	331,224	80,000	.....
St. Louis, Brownsville & Mexico‡	1,684,814	1,951,311	896,338	1,251,801	2,394,000	5,208,284	.....	.....
St. Louis-San Francisco‡	15,104,808	17,336,113	1,136,031	5,657,481	7,905,229	12,495,000	.....	.....
St. Louis, San Francisco & Texas	322,755	367,343	211,809	256,588	525,798	763,000	.....	.....
St. Louis Southwestern‡	6,569,649	10,807,120	3,993,006	8,119,085	15,695,830	22,670,794	.....	.....
San Antonio, Uvalde & Gulf‡	*565,184	*479,960	*878,670	*689,263	.....	.....	.....	.....
Texas & New Orleans	14,661,749	13,025,499	10,431,090	8,779,570	15,476,917	33,590,799	.....	.....
Texas & Pacific	10,545,616	6,757,274	7,243,162	3,821,791	15,394,777	21,829,987	2,154,025	1,572,700
Texas Mexican	287,477	385,856	126,289	224,197	116,790	110,000	.....	.....

[1] Includes Atchison, Topeka & Santa Fe, Gulf, Colorado & Santa Fe, and Panhandle & Santa Fe.

[2] Data not included in totals. Includes Southern Pacific Company, Texas & New Orleans R. R. Co., and leased lines.

[3] Federal manager's operations terminated, October 1, 1945.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

Current Publications

Books

How to Find and Succeed in Your Post-War Job, by Frank S. Endicott, 147 pp., illustrations. Published by the International Textbook Company, Scranton, Pa. Price, $1.75.

This book attempts to help not only "G. I. Joe", but anyone seeking a job, or a better job. It contains suggestions to be followed in analyzing yourself, studying vocational opportunities, making a choice, getting a job and succeeding in it. Charts and rating blanks are included.

Australia, The New Customer: A commercial and economic guide for American business men, by Howard Daniel and Minnie Belle, 369 pp., maps. Published by the Ronald Press Company, 15 E. 26th Street, New York, N. Y. Price, $4.50.

The aim of this book is to provide American business men with an economic and commercial guide to Australia. The subject matter falls into two parts. The first part gives general background information which is important in an adequate understanding of Australia as a market; the second gives detailed attention to primary and secondary industries, as well as to communication, transportation, public utilities and other facilities, with particular emphasis on the future outlook and market opportunities for American business. Market research data for the capital cities are given in an appendix, as are sources of commercial intelligence. A bibliography of books and periodicals relating to Australia is also included.

Articles in Periodicals

The Rock Island; Midwestern railroad system is "highballing" once more. Life, February 25, 1946, pp. 93-103.

Referred to by "Life" as a "photographic essay", these pages of pictures, interspersed with text, depict various phases of railroading on the Rock Island. Shots of high speed passenger trains vie with those showing new track construction, operations performed by station agents and trainmen, railroading in a small town, research laboratory developments, shop operations, and dining car service.

The Appropriate Bargaining Unit Question Under the Railway Labor Act, by Herbert R. Northrup. The Quarterly Journal of Economics, February, 1946, pp. 250-269.

Discusses the historical background of the Railway Labor Act, the 1934 Amendments, the meaning of "craft or class", the meaning of "carrier", the race question and the bargaining unit, the foremen and the bargaining unit, and the bargaining unit in the air transport industry. Policies of the National Mediation Board, which was set up under the Railway Labor Act, are compared with those of the National Labor Relations Board.

Railroad Conflicts in Colorado in the 'Eighties, by William S. Jackson, 28 pp.

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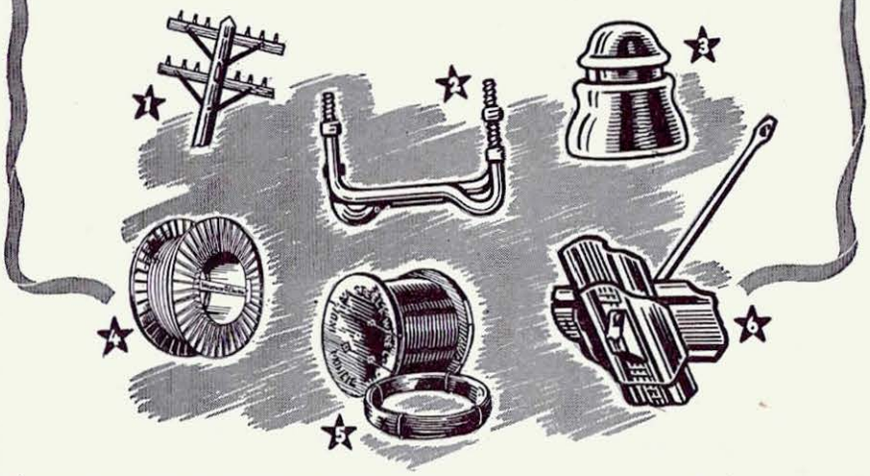

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Reprinted from The Colorado Magazine, January, 1946.

An address given by Justice Jackson of the Colorado Supreme Court at the annual meeting of the State Historical Society, December 11, 1945. It discusses the history of the Colorado railroads involved in, first, the battle for Leadville, and later, the struggle for Aspen and the control of the Grand or (as it is now called) the Colorado river. Most of the article is devoted to the activities of the Denver & Rio Grande and the Colorado Midland in building their lines to Aspen. How much of Colorado's railroad mileage came under the control of Jay Gould is also discussed briefly.

Inside Track for the Traveler, by Walter Dorwin Teague. Holiday, April, 1946., pp. 72-75.

Mr. Teague, a pioneer industrial designer, surveys the railroads' plans for more spacious cars, greater comfort and a better ride.

Trade Publications

Steel in the War, 164 pp., illustrations. Published by the United States Steel Corporation, 71 Broadway, New York 6, N. Y. Free.

The war role of a basic American industry is fully revealed for the first time in this book, which assembles facts and figures measuring the importance to the national security of this basic metal. It is generously illustrated and has been made available to thousands of libraries as an industrial reference volume.

To back up the industrial effort of the United States and its allies, and at the same time meet essential home front needs, the American steel industry increased its annual production 70 per cent over 1939, and produced a total of 467,000,000 tons of steel in the five years ending July 31, 1945. U. S. Steel's share of that amount was 161,000,000 tons.

Throughout "Steel in the War", stress is laid on the extreme care taken in the manufacture and testing of steel and steel products, to assure top-notch quality. "The vigilant eye of laboratory technicians and inspectors never ceases to follow closely every operation in steel making, from the ore mines to the finished steel product," says the book. The eight-inch high explosive shell, for example, was inspected every step in the way of its manufacture —85 inspections in all. The army's standard field piece, the 105 mm. howitzer, fired 16,000,000 rounds during a three-year period with only 8 malfunctions and no casualties.

"Steel in the War" also traces the development of many new steels and new uses of steel which were invaluable to our armed forces and our allies, and are now available for postwar needs. The story of the steel helmet, the landing mat for planes, the perfection of the high-pressure steam turbine to drive ships faster and farther on less fuel, the free-fall cargo package for supplying front line troops by air, the heat-resisting steel tubes for jet propulsion planes and scores of other production achievements are described. The development of new production methods—prefabrication of ships sections, first introduced in a U. S. Steel shipyard, the new bomb-spinning process which speeded output of heavy bombs, new welding techniques which provided greater protection for the men who manned our tanks—also is recited.

Though not a statistical record, the volume lists facts and figures, including official figures of the army and navy, the War Production Board and the Lend-Lease Administration, which measure the gigantic war task accomplished by the steel industry and other war suppliers who produced military articles from steel.

Pamphlets

George Westinghouse; His Life and His Achievements, 36 pp. Published by Westinghouse Electric Corporation, Pittsburgh, Pa. Free.

1946 is the centennial of the birth of George Westinghouse. This pamphlet, as its title indicates, reviews his life and achievements; the pioneering work he did in railway transportation and in his alternating-current system for power distribution. Interest in the pamphlet is enhanced by the inclusion of a number of beautifully-colored illustrations.

Experience with Wartime Subsidies, by Jules Backman, 50 pp. Published by the Citizens National Committee, Inc., 2633 16th Street, N. W., Washington 9, D. C. Single copies free.

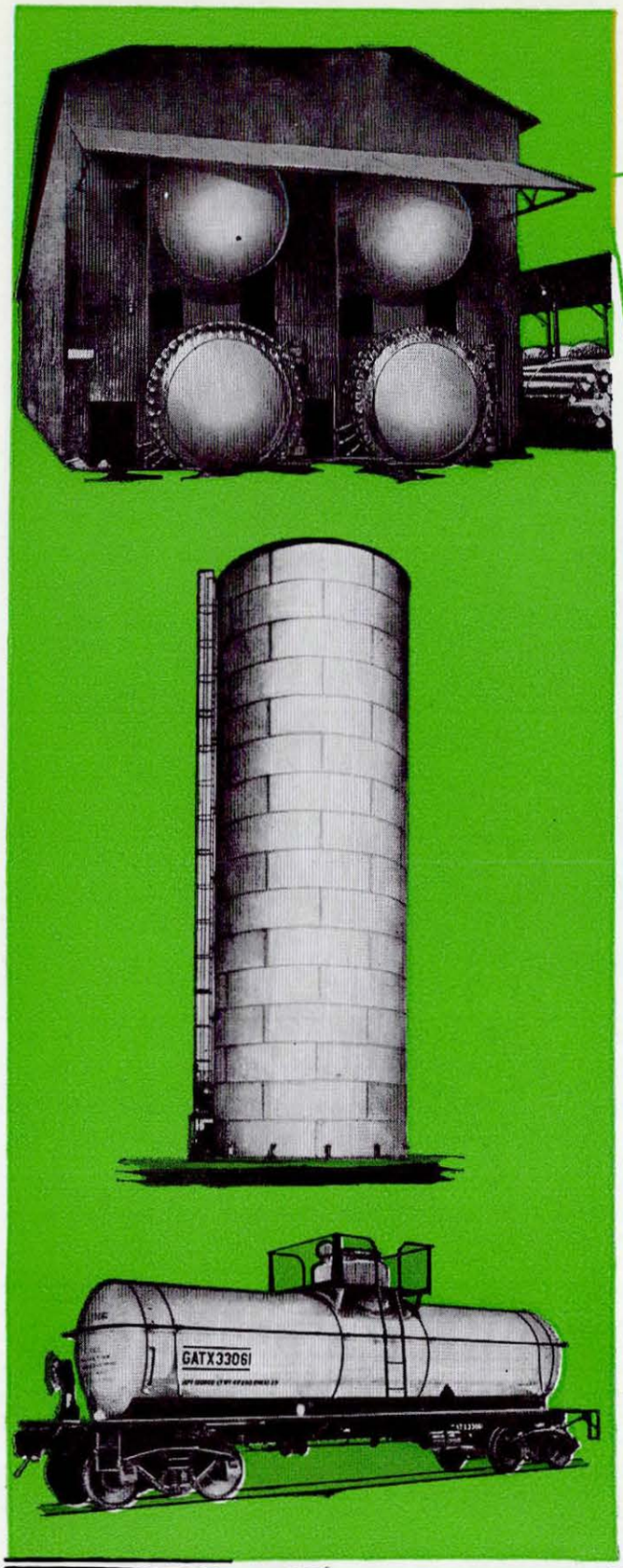
This report traces the expansion of food and non-food subsidy spending from its annual rate of $146 million in June, 1943, to an annual rate of more than $2.4 billion in mid-1945, and it poses the problem of how to get rid of the nearly $2 billion of wartime subsidy spending still left in O. P. A.'s price control program.

Should Price Control be Retained?, by Harold G. Moulton and Karl T. Schlotterbeck, 43 pp. Published by the Brookings Institution, Washington 6, D. C. Price, fifty cents.

"The purposes of this study are to analyze the character of the price control problem in the period of transition [from war to peace] and to test the desirability of maintaining the price control machinery. In making this evaluation, two principal criteria will be used: Will the continuation of price control promote or retard the rapid resumption of business activity and employment? Can the controls be readily administered and enforced?" The analysis is organized around a series of leading questions.

The St. Lawrence Project: Fundamental considerations in finding the right answer to the question of whether or not the nation should undertake the project, 20 pp. Printed and distributed by the Association of American Railroads, Transportation Building, Washington 6, D. C.

In this brief discussion, industry is directed to the "nature of the transportation which it is proposed to provide, what it would cost to make it seem 'cheap', and the effects of the project upon the existing and essential transportation systems of the United States."



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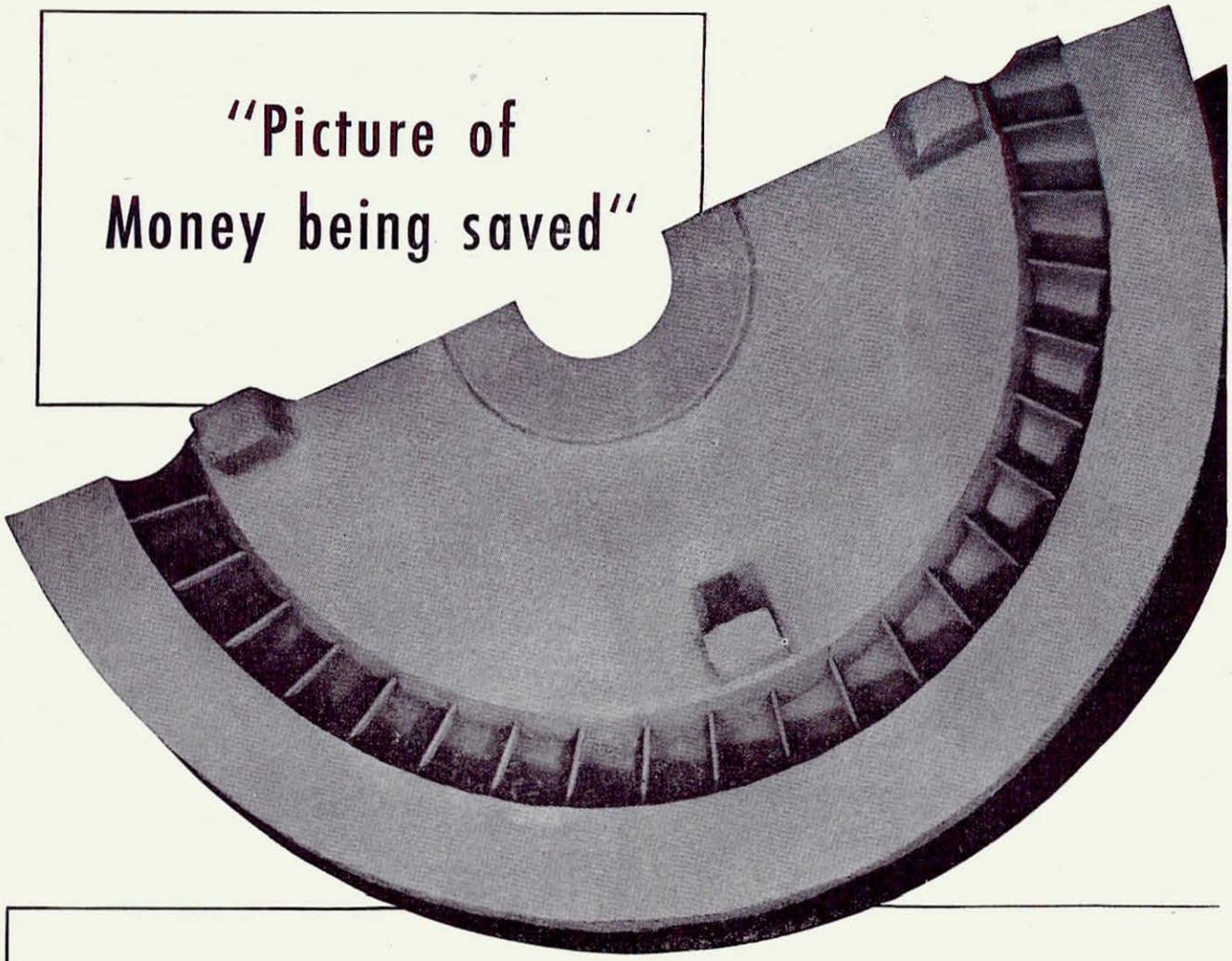

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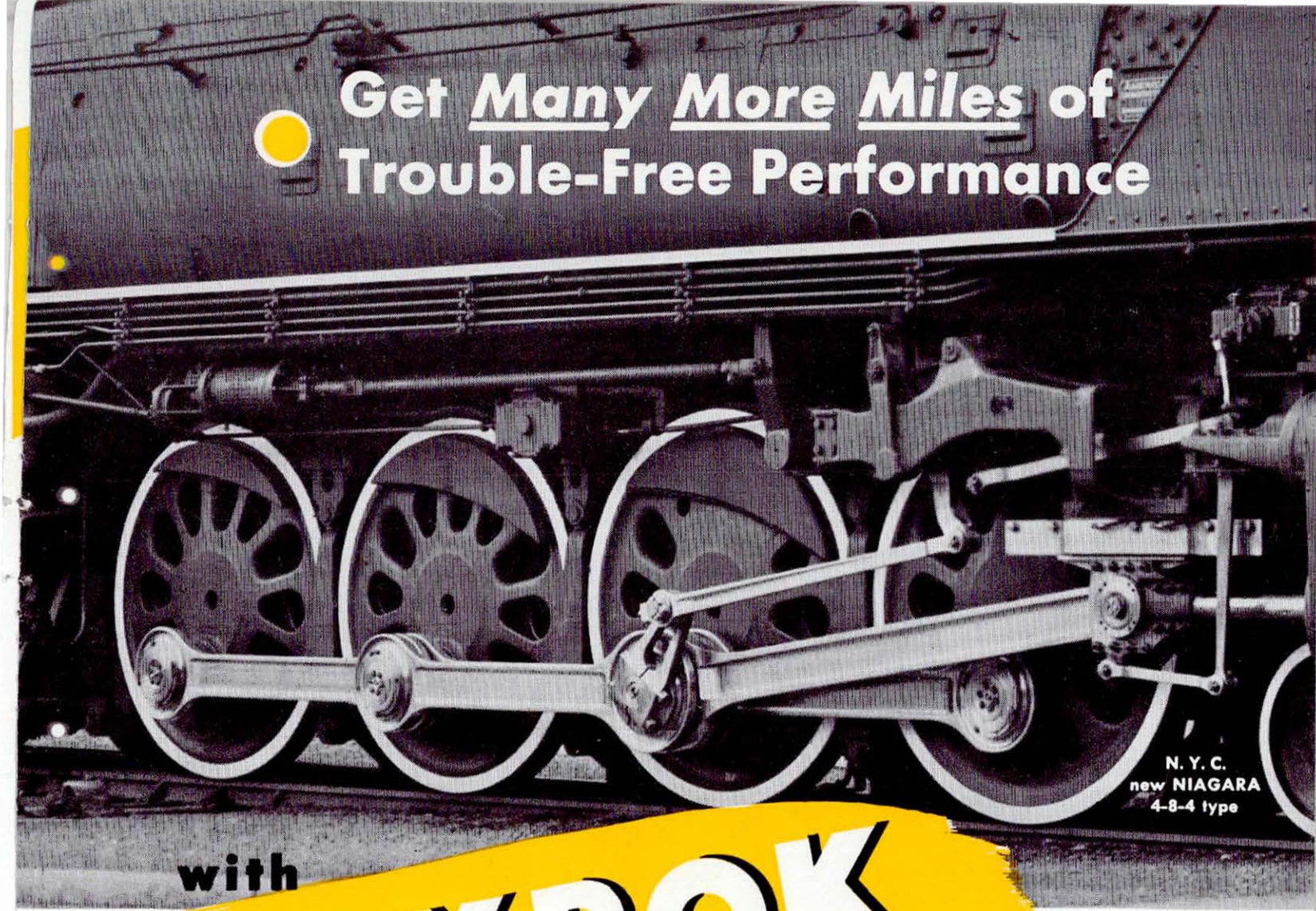

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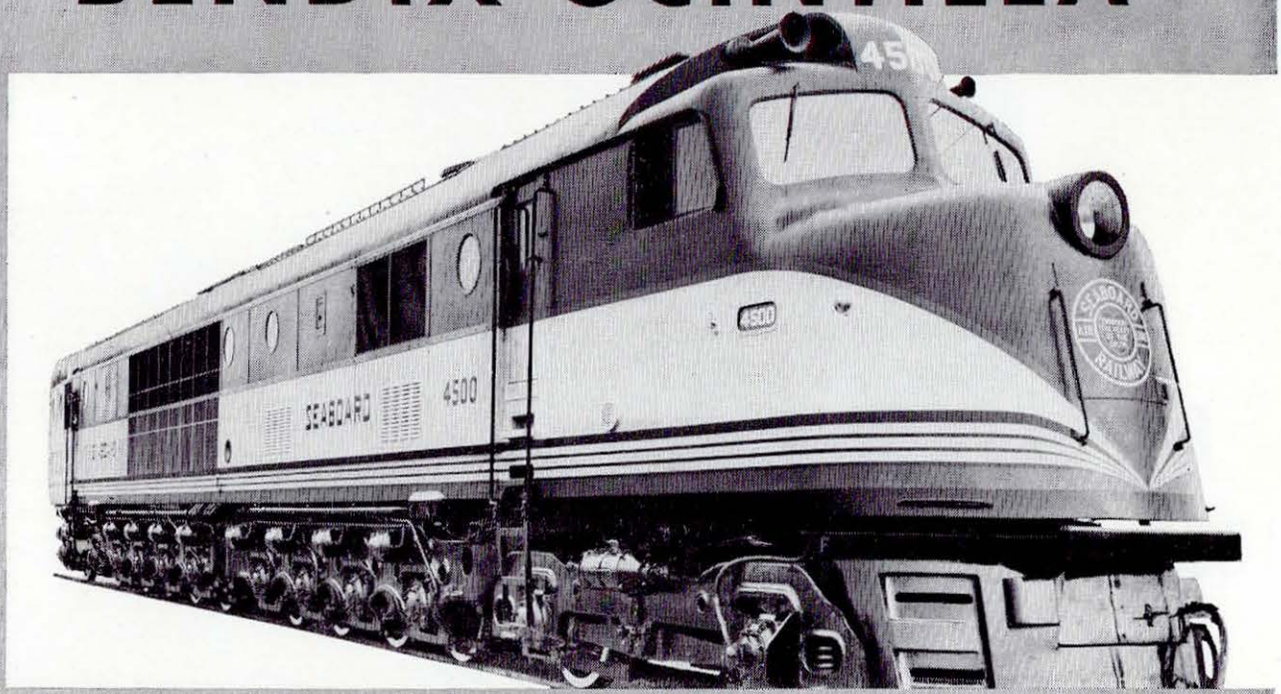

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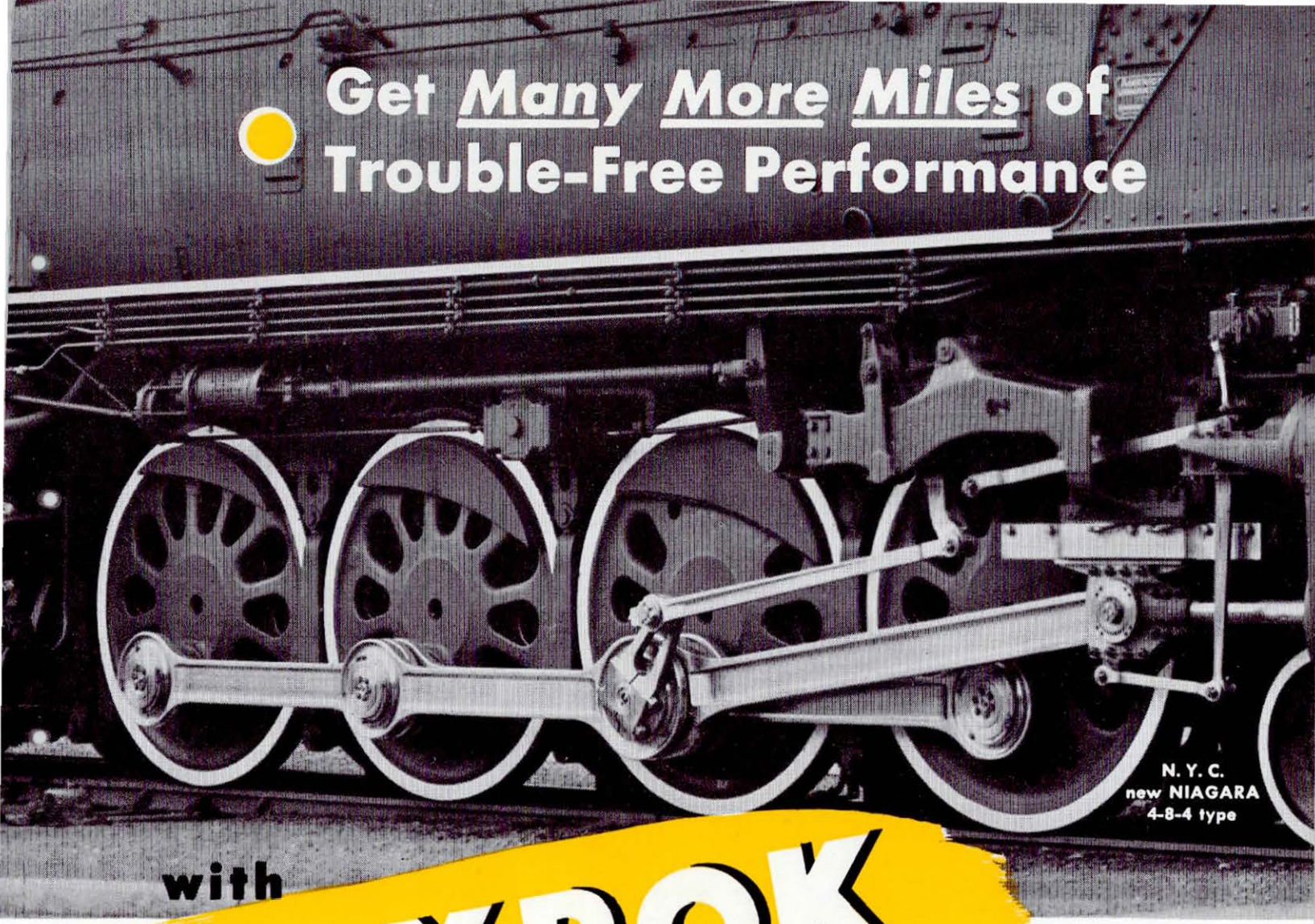

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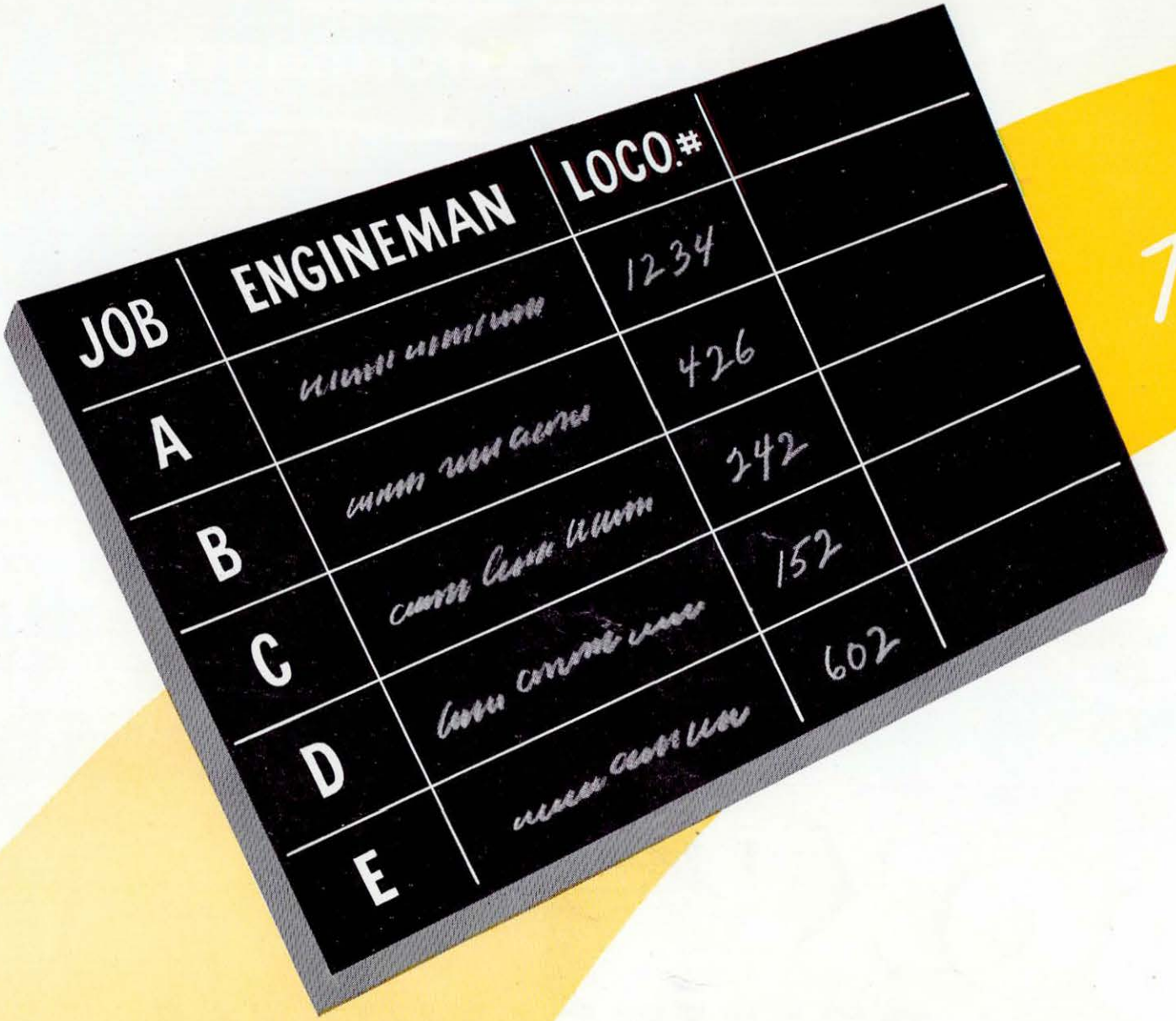

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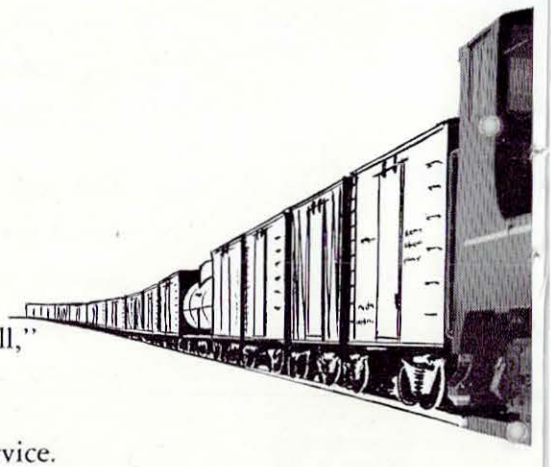

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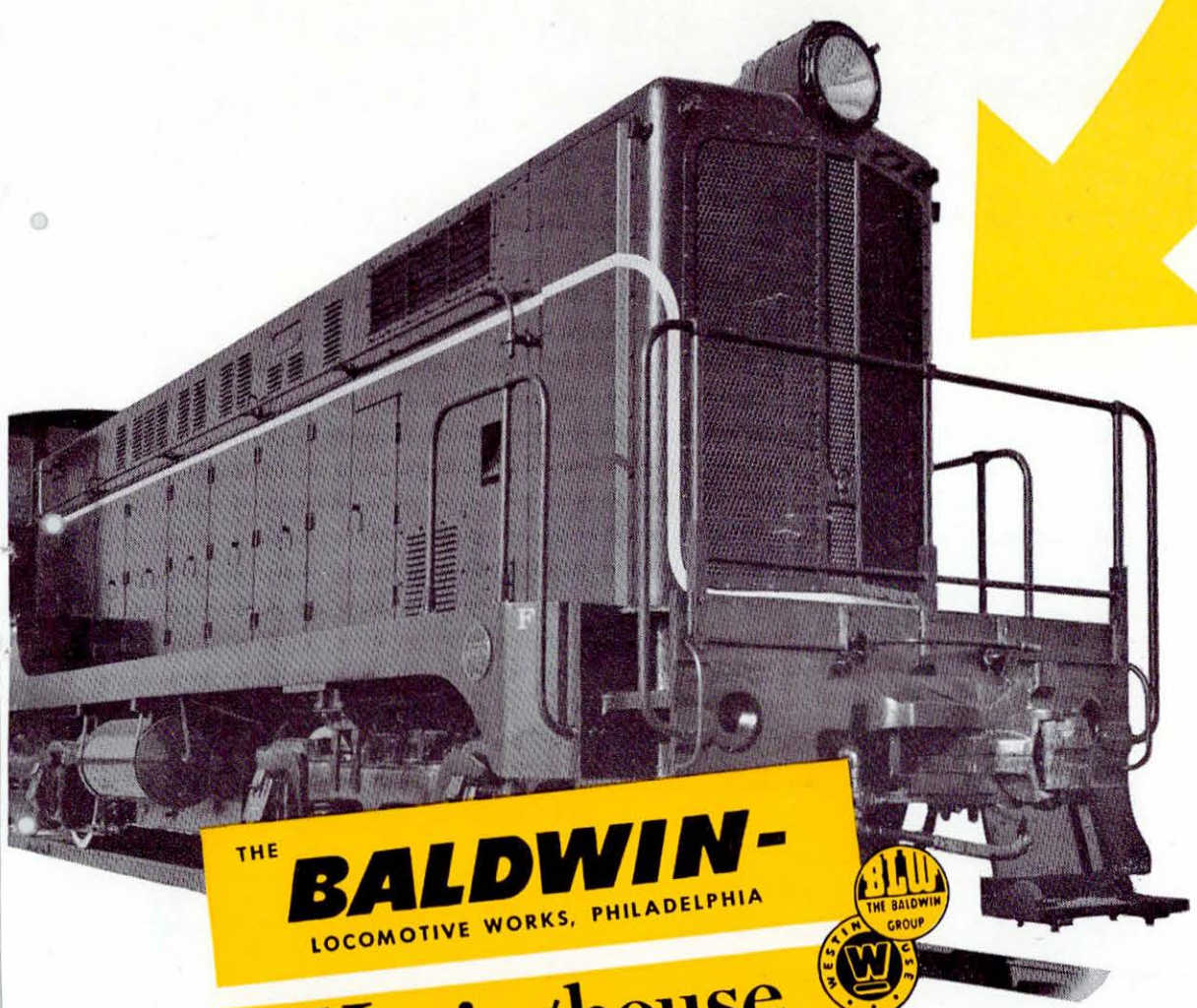

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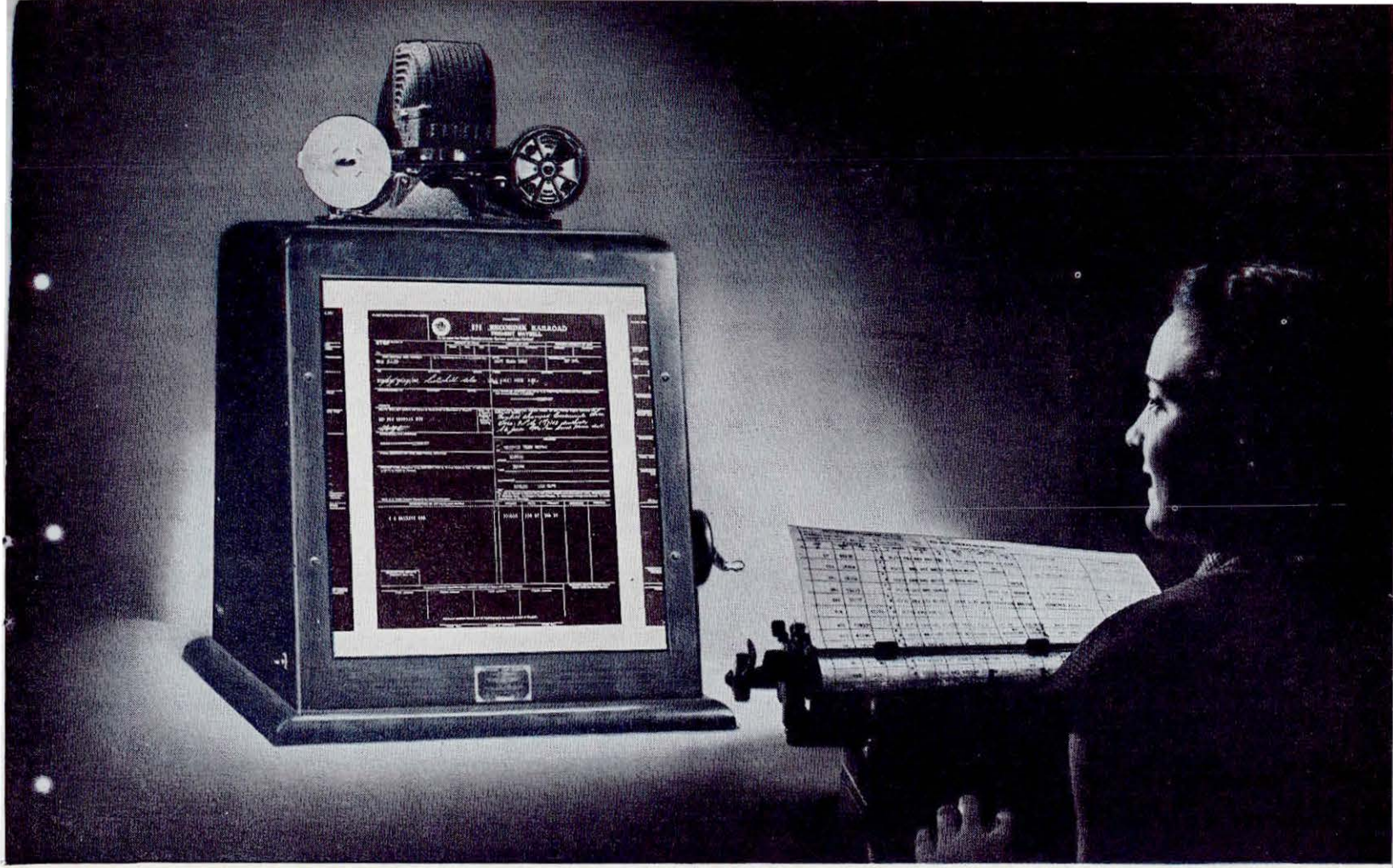

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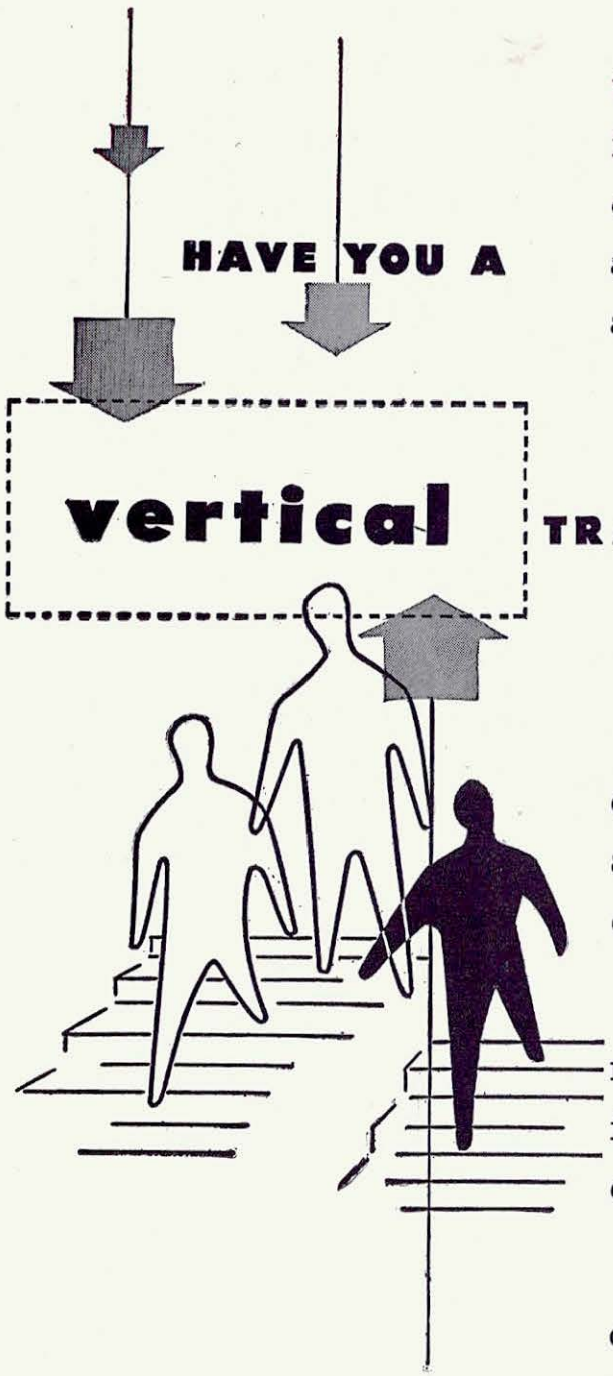

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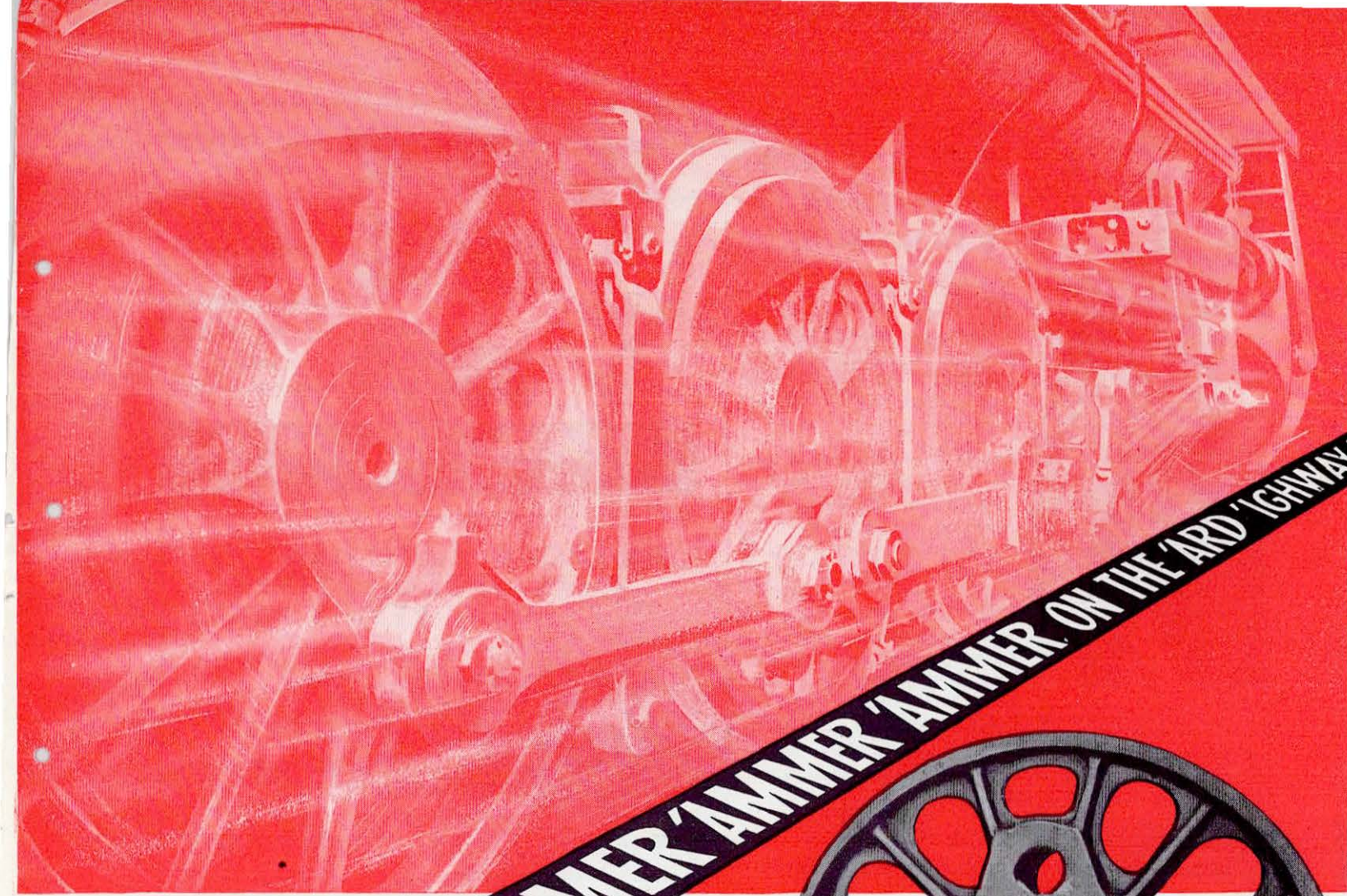

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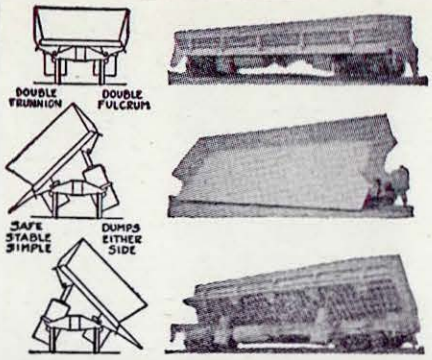

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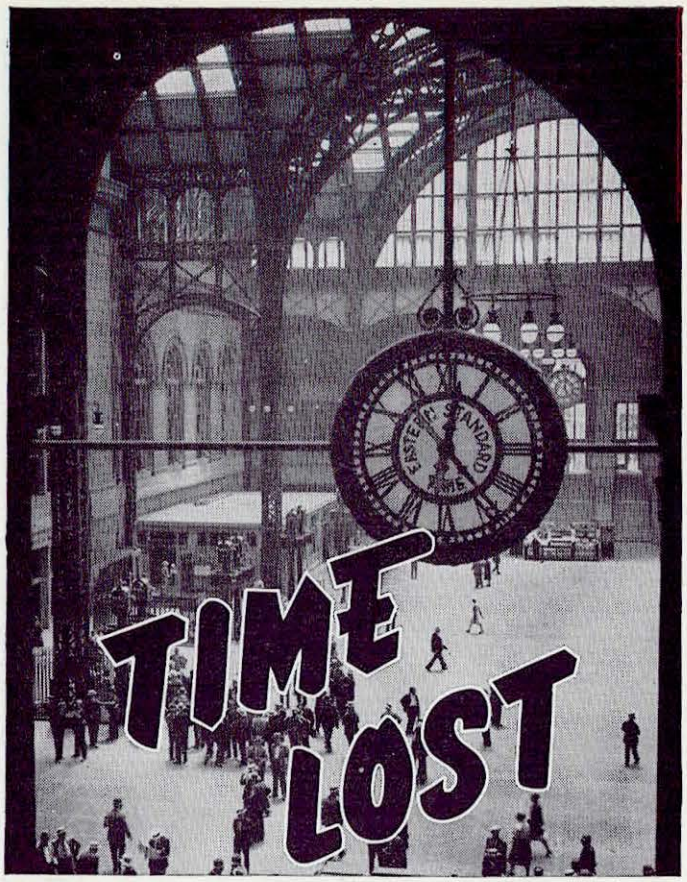

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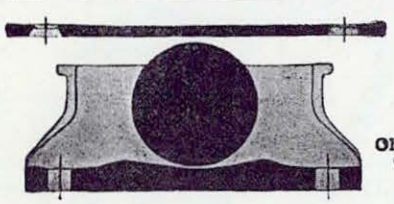

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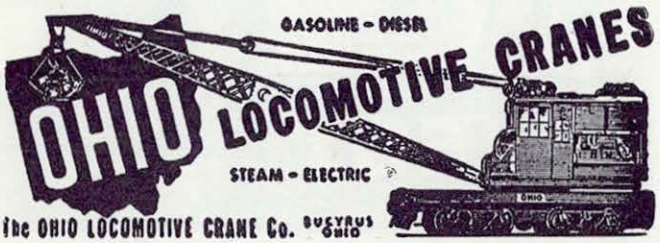

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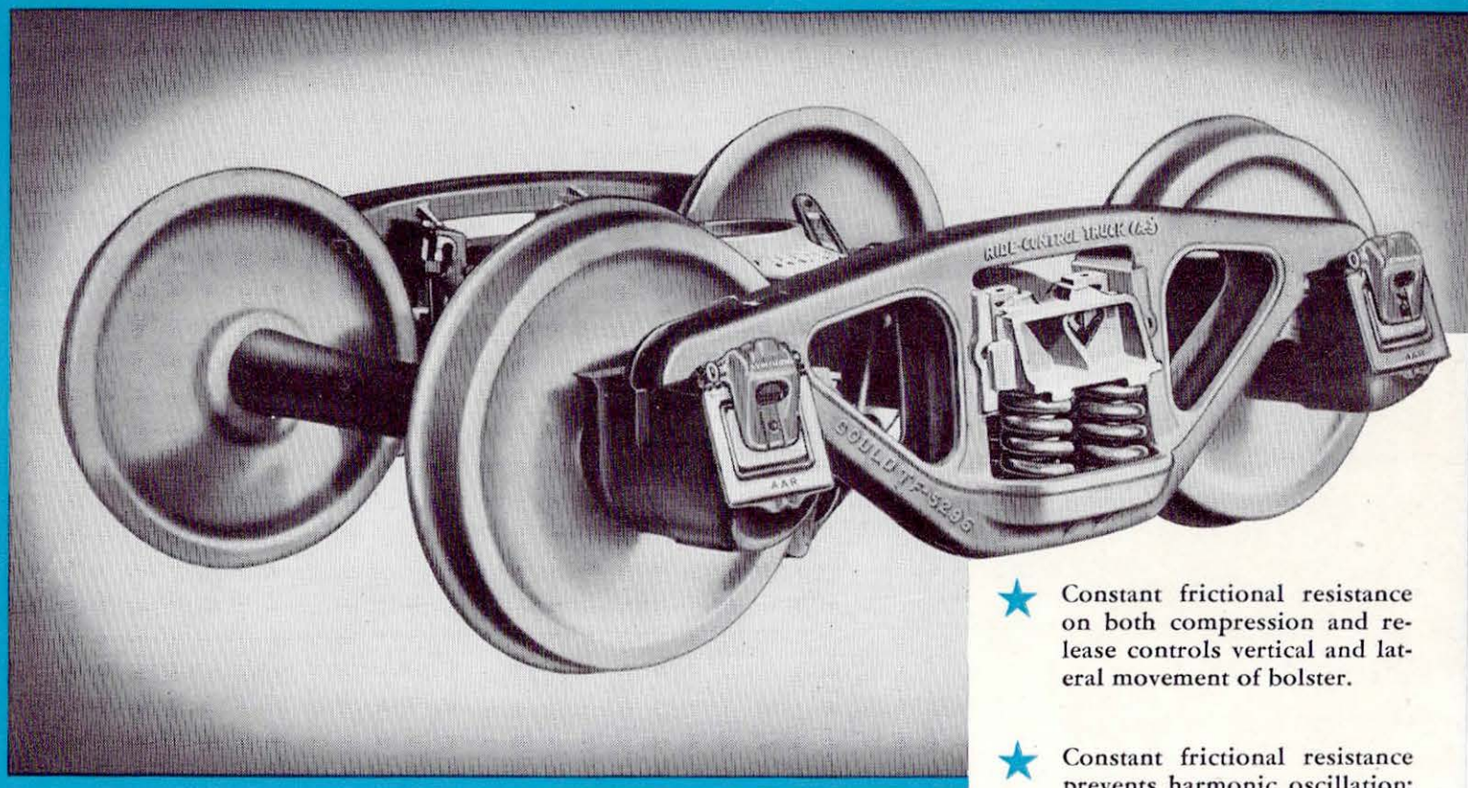

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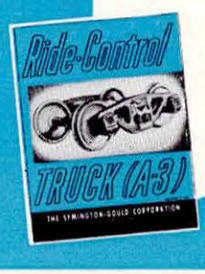

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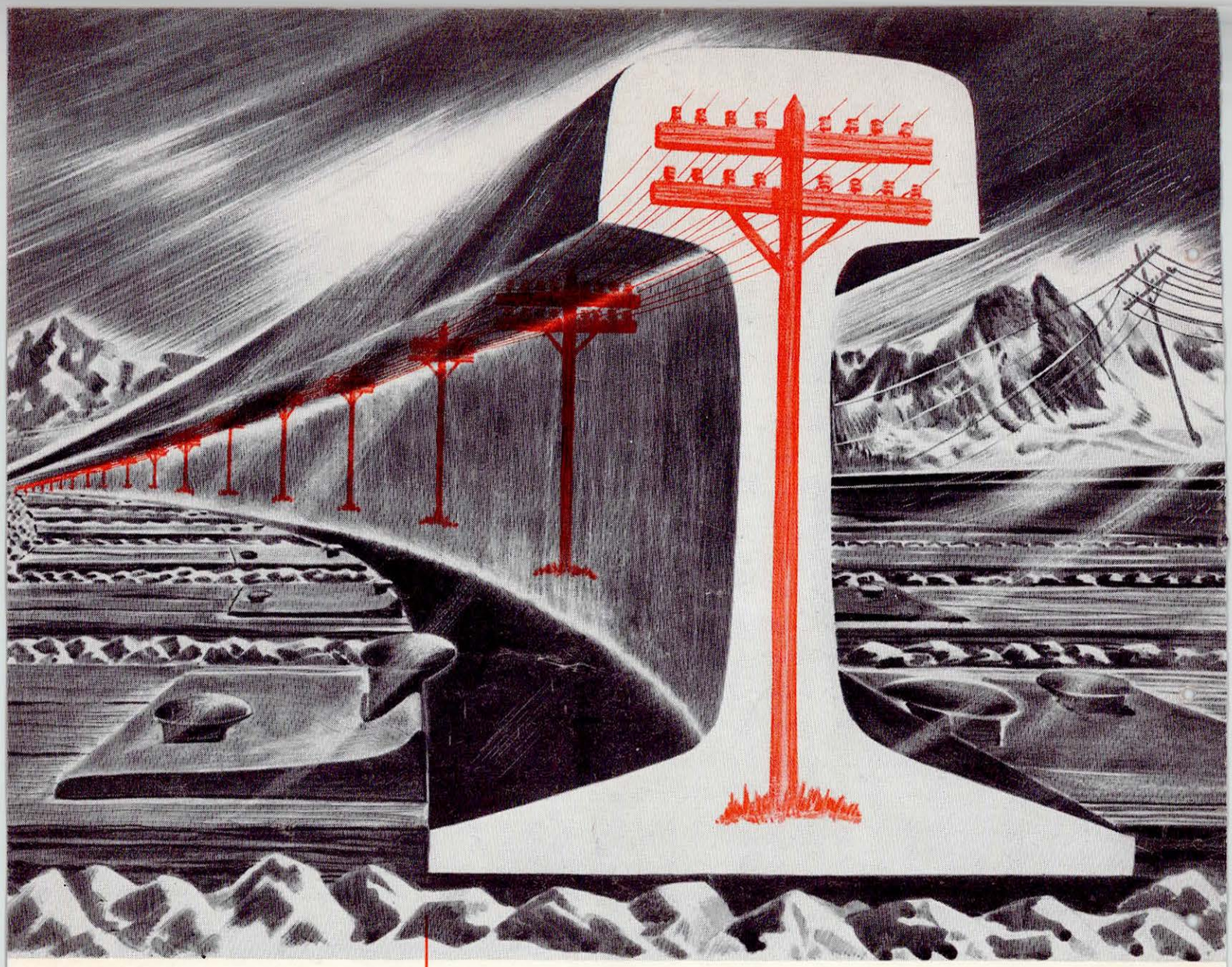

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